No. 763,417. PATENTED JUNE 28, 1904.

A. E. NORRIS.

DRUM FOR HOISTING, DERRICK, OR SIMILAR ENGINES.

APPLICATION FILED OCT. 24, 1903.

NO MODEL.

Fig. 1.

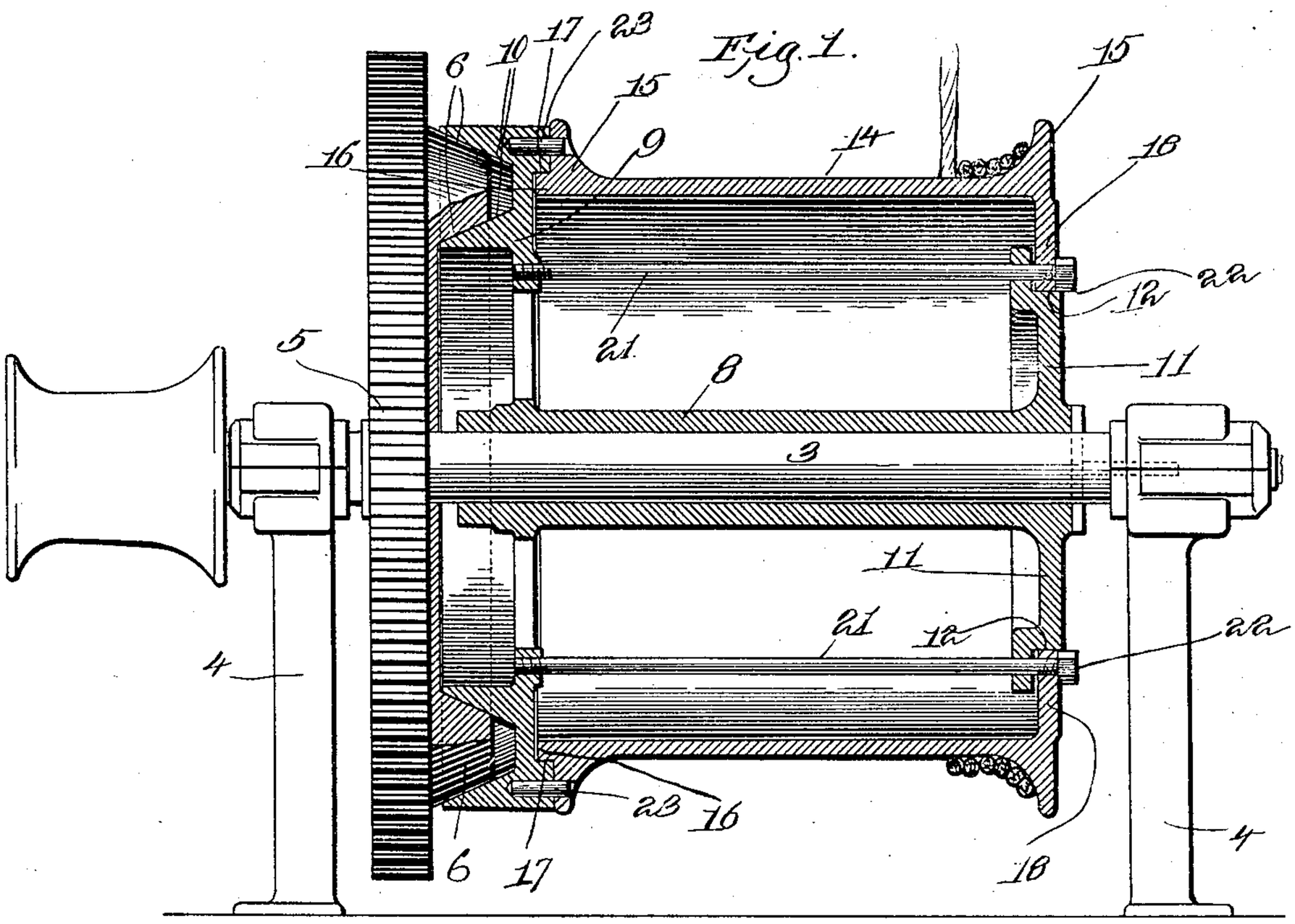
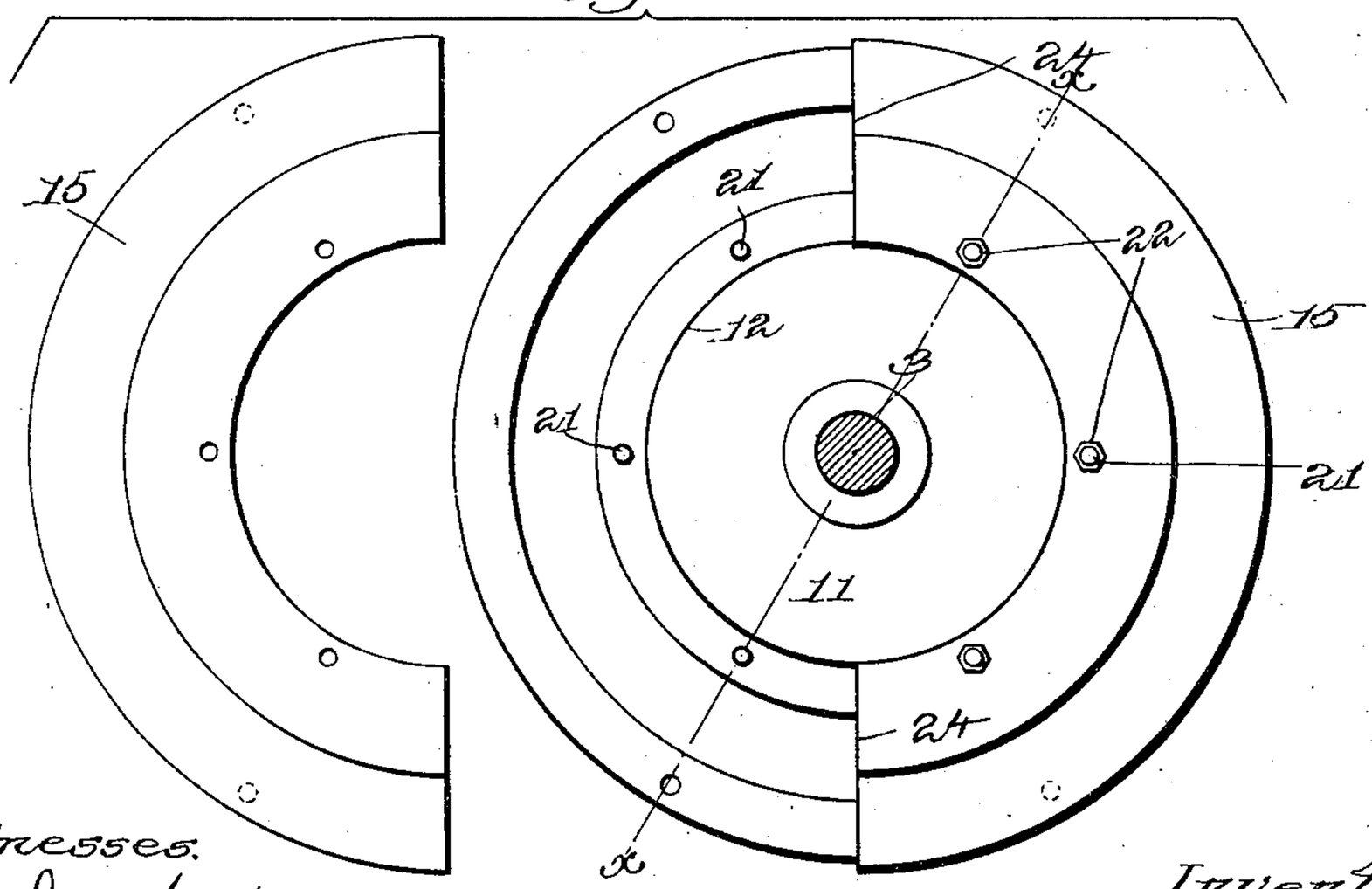


Fig. 2.



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No. 763,417. Patented June 28, 1904.

UNITED STATES PATENT OFFICE.

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DRUM FOR HOISTING, DERRICK, OR SIMILAR ENGINES.

SPECIFICATION forming part of Letters Patent No. 763,417, dated June 28, 1904.

Application filed October 24, 1903. Serial No. 178,341. (No model.)

To all whom it may concern:

Be it known that I, ALMON E. NORRIS, a citizen of the United States, residing at Cambridge, county of Middlesex, and State of Massachusetts, have invented an Improvement in Drums for Hoisting, Derrick, or Similar Engines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

This invention relates to the drums which form part of hoisting, derrick, and similar engines, and has for its object to provide a novel form of drum in which the shell or rope-receiving surface can be easily and quickly renewed whenever it becomes damaged or unduly worn. During the operation of winding the rope or cable about the drum the surface of the drum immediately adjacent and forming part of the flanges at the ends thereof become so worn after a comparatively short length of time as to render the drum unfit for use, and thereby necessitate replacing it by a new drum. This wear is occasioned principally by the fact that as the coils of rope or cable, being laid on the drum as it is rotated, reach the end of the drum they pile up on one another just prior to the reversing of the traverse movement of the rope and in so doing rub against and rapidly wear the flanges of the drum. Heretofore it has been customary to make the drum in one single casting, and, as a result, whenever the flanges of the drum became unduly worn the drum had to be replaced by a new drum, and in doing this it was necessary to take the shaft on which the drum was mounted entirely out of the bearings in order to permit the drum to be removed therefrom and a new drum placed thereon. All this of course consumed a good deal of time. To obviate this, I have provided a drum which comprises a body portion or hub which is mounted directly upon the shaft of the hoisting-engine and an exterior shell which is detachably sustained by the hub or body portion and can be readily removed therefrom without removing the body portion from the shaft or taking the shaft from the bearings, all as hereinafter more fully described, and set forth in the claims.

In the drawings, Figure 1 is a sectional view on line *x x*, Fig. 2; and Fig. 2 is an end view of the drum, a portion of the shell being removed.

Since the invention relates entirely to the hoisting-drum portion of a hoisting, derrick, or similar engine, I have not deemed it necessary to illustrate the engine in its entirety.

In the form of my invention herein illustrated, 3 designates the positively-driven shaft on which the hoisting-drum is mounted and which is supported to the bearings 4.

5 designates a fixed friction member fast to the shaft and having the cone-friction 6 rigid therewith, said cone-friction forming part of the friction-clutch by means of which the hoisting-drum is driven, as usual. As herein shown, the member 5 is in the form of a gear-wheel which is geared to the usual crank-shaft of the hoisting or derrick engine, although this member 5 might assume various forms, according to the character of the engine, without departing from my invention.

The hoisting-drum itself, which is loosely mounted upon the shaft, as usual, comprises a central body or hub portion and a shell portion removably mounted thereon. The hub or body portion (designated by 8) is loosely mounted on the shaft 3 and has at one end a head or flange 9, provided with friction-surfaces 10 to coöperate with the friction-cone 6, and at the other end the body has the radial annular flange 11, formed to present the annular seat 12. The shell portion is split or divided longitudinally of the drum or parallel to the axis thereof and is made in two or more parts which can be removed laterally from the body portion. Said shell portion has the central cylindrical rope-receiving portion 14 and the end flanges 15. At one end the shell is formed with the central annular flange or rib 16, which fits inside of the annular shoulder 17 on the head 9, the engagement of the shoulder and flange serving to properly cen-

ter the end of the drum and hold the shell in position. The other end of the shell has the inwardly-directed radial flange 18, which rests on the seat 12. The shell is held in place by rods or tie members 21, which are rigid at one end with the head 9 and at the other end pass through apertures in the flange 18, suitable nuts 22 serving to hold the shell from longitudinal movement. If desired, dowel-pins 23 may be employed to assist in holding the left-hand end of the drum, Fig. 1, from rotation relative to the head 9. In this form of my invention the shell is divided longitudinally on the diametrical line 24 into two parts, the purpose of thus dividing the shell being to permit it to be readily and quickly removed from the hub or body portion of the drum. With this construction it will be observed that by merely removing the nuts 22 and withdrawing the portions of the shell longitudinally sufficiently to withdraw the flanges 18 from the ends of the rods 22 each half of the shell may be removed from the drum laterally, as shown in Fig. 2, this operation being accomplished without the necessity of removing the drum from the shaft or removing the shaft from its bearings. In the same way a new shell can be applied to the drum without disturbing any of the other parts of the machine. When the shell is applied to the drum as shown, the drum structure becomes practically rigid and can be clutched or unclutched to the friction member 5 by movement longitudinally of the shaft, as usual in this class of devices.

While I have herein shown one way in which the idea of a renewable shell for drum can be applied, I do not wish to be limited to the exact structure shown, as other ways of accomplishing the object of the invention may be employed without in any way departing from the invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hoisting-drum, a central hub portion adapted to be rotatably mounted upon a shaft, and a renewable shell constituting a rope-receiving member, said shell having a central cylindrical portion which terminates at each end in an outwardly-flared portion integral with the shell and forming the flange of the drum.

2. In a hoisting-drum, a central hub adapted to be mounted on a shaft, and a renewable shell detachably secured to said hub, said shell constituting the only rope-receiving portion of the drum and having integral therewith, at each end, a radial flange which limits the traverse of the rope on the drum.

3. In a hoisting-drum, a central hub having at one end a head provided with an annular shoulder and at the other end a radial flange provided with a seat, a renewable shell constructed at one end to engage said shoulder and at the other end resting upon said seat, and means to detachably secure said shell to said hub.

4. In a hoisting-drum, a central hub having at one end a head provided with an interior annular shoulder, and at the other end a radial flange provided with a seat, a renewable shell having at one end a shoulder to engage said interior shoulder of the head, and at the other end resting upon said seat, and means to detachably secure said shell to said hub.

5. In a hoisting-drum, a central hub, a renewable shell, means to detachably secure said shell to said hub, and centering means for the shell carried by the hub and acting on the outside of the shell at one end thereof.

6. In a hoisting-drum, a central hub or body having a head at one end formed to constitute one member of a friction-clutch and provided with an annular shoulder, and a radial annular flange at the other end provided with a seat, and a renewable shell having a flange at one end to engage said shoulder, and at the other end resting upon said seat, and means to detachably secure said shell to said hub or body portion.

7. In a hoisting-drum, a central hub or body having a head at one end formed to constitute one member of a friction-clutch and provided with an annular shoulder and a radial annular flange at the other end provided with a seat, a longitudinal, split and separable shell having a flange at one end to engage said shoulder, and at the other end resting upon said seat, and means to detachably secure said shell to said hub or body portion.

8. In a hoisting-drum, a body portion adapted to be mounted upon a shaft and having at one end a head provided with a clutch-surface and at the other end with a radial flange provided with a seat, a longitudinally split and separable shell surrounding said body portion and having at one end an inwardly-disposed radial flange to rest on said seat, and tie members securing said flange of the shell to the head of the body portion.

9. In a hoisting-drum, a body portion adapted to be mounted upon a shaft and having at one end a head provided with a clutch-surface and at the other end with a radial flange provided with a seat, a longitudinally split and separable shell surrounding said body portion and having at one end an inwardly-disposed radial flange to rest on said seat, and tie members securing said flange of the shell to the head of the body portion, said head having means to center the adjacent end of the shell.

10. In a hoisting-drum, a central hub having at one end a head and at the other end a radial flange, a renewable shell engaging said head and seating on said flange, means to detachably secure said shell to said hub, and means to prevent said shell from turning about the hub.

11. In a hoisting-drum, a central hub hav-

ing at one end a head and at the other end a radial flange, a renewable shell engaging said head and seating on said flange, means to detachably secure said shell to said hub, and projections extending from said head into one end of the shell.

12. In a hoisting-drum, a central hub having a head at one end and a radial flange at the other, a renewable shell surrounding said hub, said shell at one end engaging the head and at the other resting on the flange, longitudinal tie-rods extending through the shell and flange and into the head, and dowel-pins carried by the head and seating in recesses in the adjacent end of the shell.

13. In a hoisting-drum, a hub having at one end a head provided with an interior annular shoulder, and at the other end with a flange having a seat, a renewable shell constructed at one end to engage said interior shoulder and at the other end having an inwardly-projecting flange resting on said seat, detachable means to secure the flange of the shell to the flange of the hub, and means carried by the head of the hub and engaging the adjacent end of the shell to prevent the latter from turning about the hub.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALMON E. NORRIS.

Witnesses:

LOUIS C. SMITH,

NATHAN HEARD.