

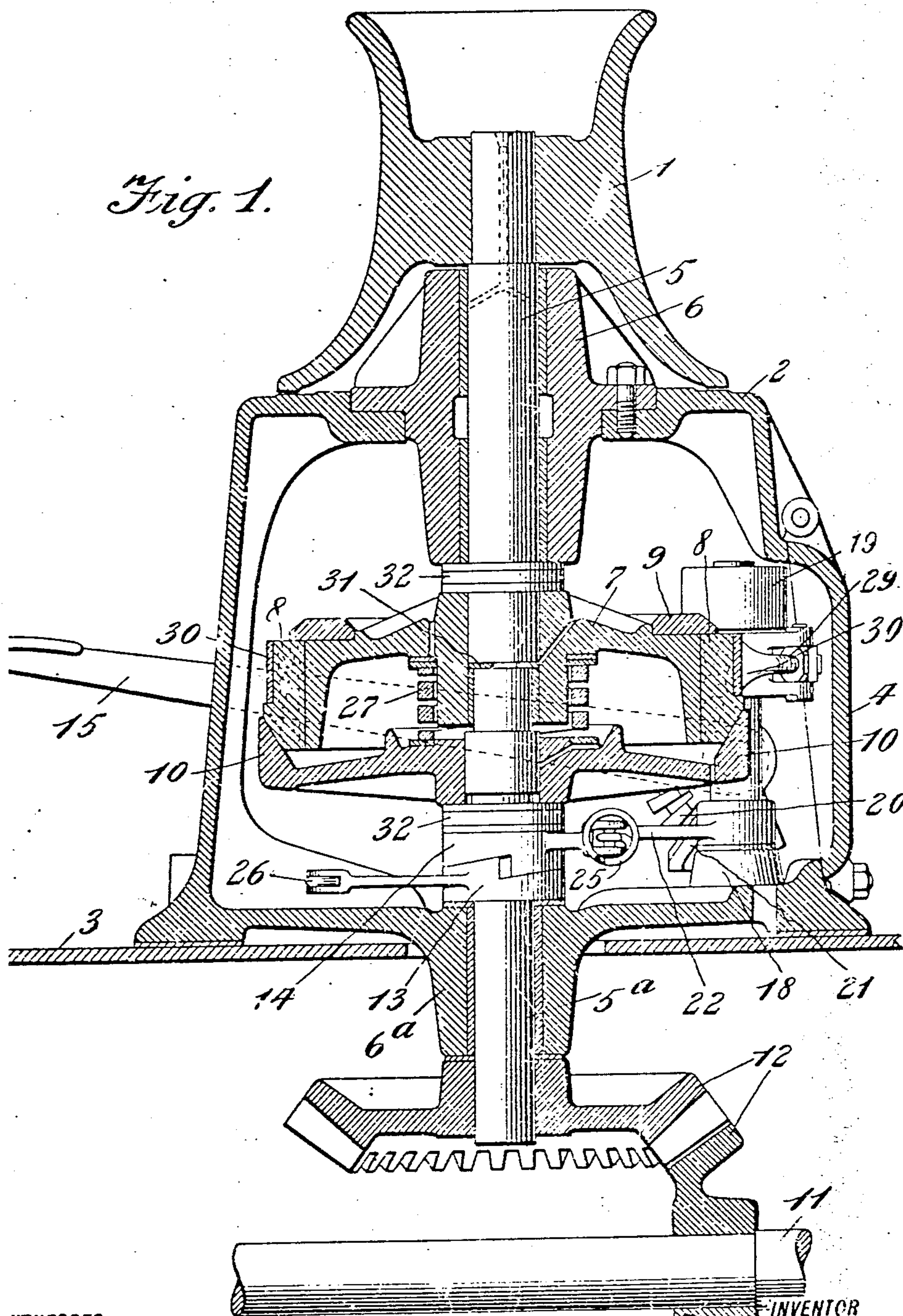
H. N. COVELL.  
WINCH.  
APPLICATION FILED MAR. 8, 1909.

7,331.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

*E. Hardinburg, Jr.*

INVENTOR  
*Harry H. Covell*  
BY *Gifford & Bull*  
ATTORNEYS

H. N. COVELL.  
WINCH.

APPLICATION FILED MAR. 3, 1909.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 2.

967,331.

Fig. 2.

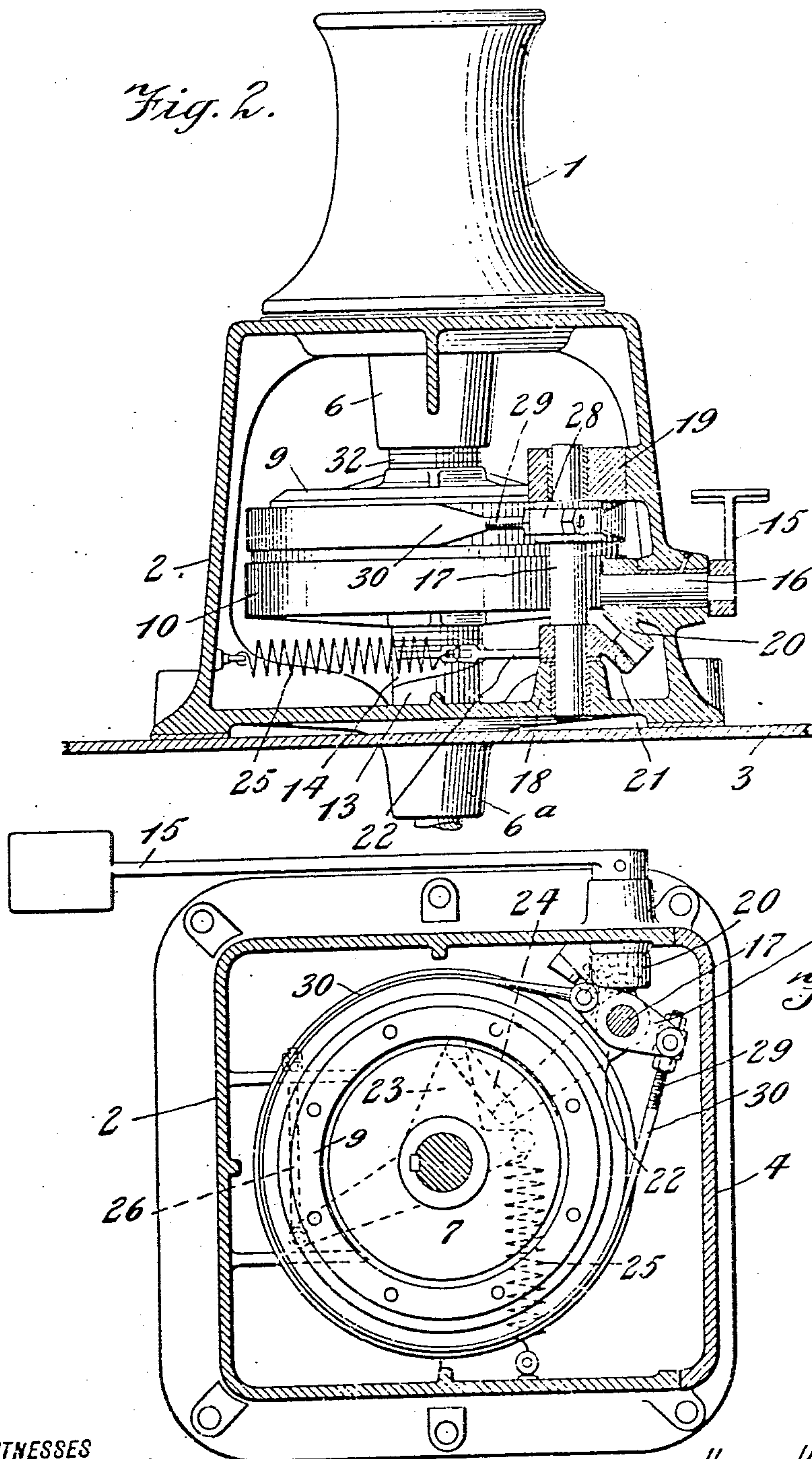


Fig. 3.

WITNESSES

*J. C. Hensburgh, Jr.*

INVENTOR

*Harry H. Covell*  
BY *Gifford & Bull*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

HARRY N. COVELL, OF NEW YORK, N. Y., ASSIGNOR TO LIDGERWOOD MANUFACTURING COMPANY, A CORPORATION OF NEW YORK.

WINCH.

967,331.

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

Application filed March 8, 1909. Serial No. 481,931.

*To all whom it may concern:*

Be it known that I, HARRY N. COVELL, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Winches, of which the following is a specification.

The object of my invention is to provide a winch of novel construction which is compact, efficient and simple in design and operation. Such a winch is more particularly designed for use on the deck of a ship where it is customary to have a number of winches which may all be in use simultaneously, but which are more usually operated one or two or more at a time; in such cases it is desired that the heads of winches not in use be stationary, and it is provided by my invention that the winch is normally non-operating and the brake applied, operation being secured by the movement of a lever and being checked automatically when the lever is released.

In the drawings herewith I have shown and will hereafter describe a preferred form of my invention as embodied in a vertical winch especially adapted for use on board a ship, but I do not desire to limit myself to such particular form or use but to cover any form of embodiment of my invention which consists in the arrangement, construction and operation of parts as set forth in and falling within the scope of the claims hereto appended.

Like characters of reference denote like parts in all the figures of the drawings herewith.

Figure 1 represents a sectional side view in vertical elevation of the preferred form of my improved winch; Fig. 2 represents a side view in elevation, a side of the winch housing or casing being removed and portions of the mechanism therein being shown in section; Fig. 3 represents a plan view taken through the winch housing or casing, certain hidden parts being shown in broken lines.

The preferred form of construction of my improved winch in detail is as follows:

The winch head 1 is mounted on the top of a metal housing or casing 2, which is secured to a deck plate or other suitable support 3, and is provided with a water-

tight door 4 arranged to afford easy access to the interior of the housing or casing. A vertical shaft composed of two sections 5 and 5<sup>a</sup> extends through the casing, the winch head 1 being keyed, or otherwise secured to the upper end of shaft 5. At the top of casing 2 the shaft section 5 passes through a bearing formed by casting 6, which is preferably babbitt lined or bushed.

To the lower end of the shaft section 5 is keyed, or otherwise secured, a metal disk 7, to the periphery of which are bolted metallic friction blocks 8, preferably formed in segments and chamfered or beveled at their lower outer edges to form a suitable friction surface. The hub of the disk projects beyond the lower end of the shaft 5 to provide a seat to receive the upper end of the shaft section 5<sup>a</sup>, in which hub or seat, the latter shaft turns when the disk 7 is at rest, as hereinafter set forth, all as shown at 31. A metal ring 9 is bolted to disk 7 extending outward from the edge thereof and serving to take the shear or strain from the bolts which secure the friction blocks 8 in place. A metal disk 10 is mounted adjacent the upper end of shaft section 5<sup>a</sup> being adapted to rotate with the shaft and capable of vertical adjustment thereon by means of a feather on the shaft; the disk 10 is adapted to be in frictional engagement with friction blocks 8 when moved upward into contact therewith. At the bottom of the casing 2 shaft section 5<sup>a</sup> passes through a bearing 6<sup>a</sup> bolted to the casing and preferably babbitt lined. A drive shaft 11 underneath the deck 3 is connected with and adapted to drive the shaft section 5<sup>a</sup> through bevel gears 12.

At the bottom of casing 2 around the shaft 5<sup>a</sup> is placed a ring or cam member 13 formed with an inclined upper surface; said cam member being capable of movement around the shaft but normally maintained in a fixed position. A second ring or cam member 14 with an inclined under surface rests upon cam member 13, being capable of movement around the shaft, and when so turned, riding on cam 13 and being elevated or lowered in accordance with the direction in which it is turned.

Outside of the casing 2 is located a foot lever 15 secured to a horizontal shaft 16 which extends through the side of the cas-



ing. A vertical shaft 17 within the casing rests in lower and upper bearings 18 and 19, and is rotated by movement of the foot lever 15 through the meshing bevel gear segments 20 and 21 secured to shafts 16 and 17 respectively. A lever arm 22 is secured to the shaft 17 and a lever arm 23 to the cam member 14; joining levers 22 and 23 and pivotally secured to each is a connecting link 24. A spiral spring 25 secured to the bottom of the casing 2 and to cam member 14, serves to normally retain said member in its lowered position.

An adjusting arm 26 is pivotally secured to a lever arm projecting from the cam member 13, the arm 26 passing through a flange and being adjusted in position by a bolt threaded upon its free end; by the adjustment of the arm 26 the cam member 13 is turned to give the desired elevation to the cam member 14 when the latter rides upon the member 13; wear of the friction faces being thus compensated for and the cam member 13 being held in any desired fixed position.

A spiral spring 27 between disks 7 and 10 normally throws the disks apart and keeps the friction surfaces out of engagement.

Secured to the top of shaft 17 is a brake toggle 28, secured to which and adjustable by means of bolt 29 is a brake band 30 which encircles the upper portion of the periphery of the friction blocks 8. The brake band 30 is normally held in braking engagement with the blocks 8 by means of the spring 25 through its action on cam member 14, which is connected to the shaft 17 to which the brake toggle 28 is secured, as heretofore described.

Roller bearings 32 are preferably inserted between the lower edge of the bearing 6 and disk 7, and between the cam member 14 and disk 10.

The operation of my improved winch, as will readily be seen from the above description, is as follows: Normally the friction surfaces are held out of engagement by the action of spring 27, cam member 14 being held in its lowered position by spring 25 which also serves to hold the brake band 30 in engagement with friction blocks 8, the shaft section 5 remaining stationary and shaft section 5<sup>a</sup> revolving, if power is applied to the shaft 11. When it is desired to operate the winch head the foot lever 15 is depressed, releasing the brake 30 and turning the cam member 14 against the action of spring 25, cam member 14 riding on the cam member 13 and being elevated thus forcing disk 10 up into frictional engagement with the blocks 8 against the action of the spring 27; the operation of the winch head being thereby secured. Upon releasing foot lever 15 from pressure the lever is elevated,

friction surfaces separated, and brake applied automatically and operation of the winch head ceases.

As above described it will be seen that I have provided a winch of novel design normally stationary, readily operated by the operation of a lever, and automatically brought to rest upon the release of the lever.

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

1. A device of the class described, comprising a casing, a shaft extending through the casing, a winch head on said shaft outside of the casing, a friction disk member mounted within the casing on said shaft, a second friction disk member within the casing, means normally tending to hold said friction members out of engagement, means for bringing said members into engagement, said last mentioned means comprising a fixed cam member, a movable cam member resting on said fixed cam and adapted to be elevated, means for operating the movable cam to elevate the same, and means for adjusting the position of the fixed cam to control the elevation of the movable cam.

2. In a device of the character described, in combination, a shaft having a winch-head, and a friction disk thereon, a second shaft in longitudinal alinement with the first shaft, a friction disk on the second shaft movable into and out of engagement with the first shaft, fixed and movable cams on the second shaft relatively movable to move the disks into engagement, a countershaft, connections between the countershaft and the movable cam to move the latter in one direction, and automatic means to move the said cam in the opposite direction.

3. In a device of the character described, in combination, a shaft having a winch-head and a friction disk thereon, a second shaft in longitudinal alinement with the first shaft, a friction disk on the second shaft movable into and out of engagement with the first shaft, fixed and movable cams on the second shaft relatively movable to move the disks into engagement, a countershaft, connections between the countershaft and the movable cam to move the latter in one direction, automatic means to move the said cam in the opposite direction, and a brake acting on the first shaft, said brake being operable from the countershaft.

4. In a device of the character described, in combination, a shaft having a winch-head and a friction disk thereon, a second shaft in longitudinal alinement with the first shaft, a friction disk on the second shaft movable into and out of engagement with the first shaft, fixed and movable cams on the second shaft relatively movable to move the disks into engagement, a countershaft, connections between the countershaft and



the movable cam to move the latter in one direction, automatic means to move the said cam in the opposite direction, a brake normally set on the first shaft, said brake being released by the countershaft when the latter is operated to move the movable cam.

5. In combination, a shaft having a winch-head and a friction disk thereon, a second shaft in longitudinal alinement with the first shaft, a friction disk on the second shaft movable into and out of engagement with the first disk, fixed and rotatable cams on the second shaft relatively movable to move the disks into engagement, a countershaft, connections between the countershaft and rotatable cam to rotate the latter in one direction, and automatic means to rotate the said cam in the opposite direction.

6. In combination, a shaft having a winch-head and a friction disk thereon, a second shaft in longitudinal alinement with the first shaft, a friction disk on the second shaft movable into and out of engagement with the first disk, fixed and movable cams on the second shaft relatively movable to move the disks into engagement, a countershaft, connections between the countershaft and movable cam to move the latter in one direction, automatic means to move the said cam in the opposite direction, an operating shaft and connections between the operating shaft and the countershaft.

7. In combination, a shaft having a winch-head and a friction disk thereon, a second shaft in longitudinal alinement with the first shaft, a friction disk on the second shaft movable into and out of engagement with the first disk, fixed and movable cams on the second shaft relatively movable to move the disks into engagement, a countershaft, connections between the countershaft and movable cam to move the latter in one direction, automatic means to move the said cam in the opposite direction, an operating shaft and gearing between the operating shaft and the countershaft.

8. In a winch, in combination, a vertical shaft having a winch-head and a friction disk thereon, a second vertical shaft in longitudinal alinement with the first named shaft, a friction clutch disk on the second shaft movable into and out of engagement with the first mentioned disk but normally out of engagement therewith, means for moving the disks into engagement and so holding them, said movable clutch disk automatically moving to normal position of disengagement when the holding means is released.

9. In a winch, in combination, a shaft, a winch-head and a friction disk on the shaft, a second shaft in longitudinal alinement with the first named shaft, a movable friction disk thereon adapted to engage the first mentioned disk, a cam on the second shaft

to move the second disk, a countershaft, connections between the countershaft and cam to operate the latter to move the movable friction disk into engagement with the first named disk, and means for automatically disconnecting the friction disks.

10. In a winch, in combination, a shaft, a winch-head and a friction disk on the shaft, a second shaft in longitudinal alinement with the said first shaft, a movable friction disk on the second shaft to engage the first disk, a cam incline on the second shaft adjustable about the same, but immovable lengthwise thereof, a rotatable cam incline engaging the first cam incline and movable lengthwise of the shaft to move the movable friction disk, and means for rotating said rotatable cam to cause engagement of the friction disks.

11. In a winch, in combination, a shaft, a winch-head and a friction disk on the shaft, a second shaft in longitudinal alinement with the said first shaft, a movable friction disk on the second shaft to engage the first disk, a cam incline on the second shaft adjustable about the same, but immovable lengthwise thereof, a rotatable cam incline engaging the first cam incline and movable lengthwise of the shaft to move the movable friction disk, means for rotating said rotatable cam to cause engagement of the friction disks, and separate means to rotate it in the opposite direction to permit disengagement of the disks.

12. In a winch, in combination, a shaft having a winch-head and a friction disk thereon, a second shaft in longitudinal alinement with the first shaft and having a movable friction disk adapted to engage the said first mentioned disk, a cam incline on the second shaft having an arm, and means engaging the arm to adjust said cam about the shaft, a movable cam incline engaging said first named incline rotatable about the shaft and movable lengthwise thereof and engaging said first mentioned cam, the movable cam incline having an arm, a spring connecting the arm at a fixed point to move the cam incline in one direction to permit the disengagement of the friction disks, a second arm on the movable cam, and means engaging said second arm to move the cam in the opposite direction to engage the friction disks.

13. In a winch, in combination, a casing, upper and lower vertically alining bearings in the casing, an upper shaft section in one of said bearings carrying a winch-head and a friction disk, the lower shaft section in the other of said bearings in longitudinal alinement with the first mentioned shaft, and having a friction disk adapted to engage with the first-mentioned friction disk, and means for moving said friction disks into and out of engagement with each other.

14. In a winch, in combination, a casing,  
upper and lower vertically alining bearings  
in the casing, an upper shaft section in one  
of said bearings carrying the winch-head  
5 and a friction disk, the lower shaft section  
in the other of said bearings in longitudinal  
alinement with the first mentioned shaft,  
and having a friction disk adapted to en-  
gage with the first mentioned friction disk,  
0 means for moving said friction disks into

and out of engagement with each other, and  
means for operating the same being located  
between said bearings.

In testimony whereof I have herein signed  
my name to this specification in the presence 15  
of two subscribing witnesses.

HARRY N. COVELL.

Witnesses:

CHAS. H. TELLER,

C. W. ADAMS.