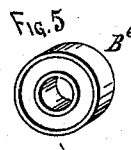
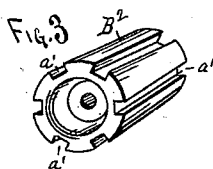
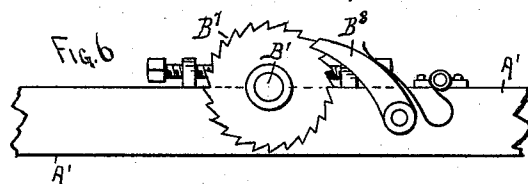
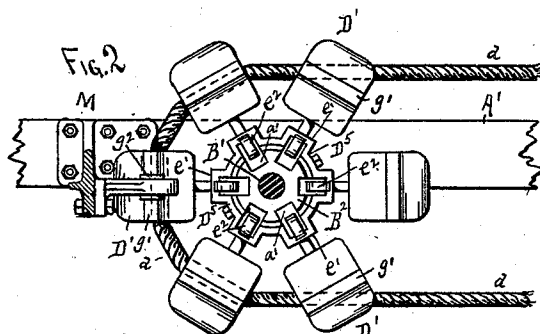
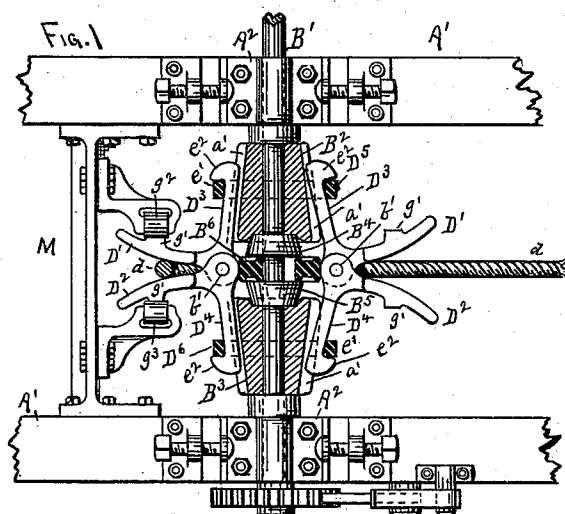


(No Model.)

J. H. WATTS.
AUTOMATIC GRIPPING CABLE PULLEY.

No. 532,349.

Patented Jan. 8, 1895.



WITNESSES.
W. B. Kahner
H. L. Wehler

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Charles W. Woodward
Att'y.

UNITED STATES PATENT OFFICE.

JOHN H. WATTS, OF AUBURN, NORTH DAKOTA.

AUTOMATIC GRIPPING CABLE-PULLEY.

SPECIFICATION forming part of Letters Patent No. 532,349, dated January 8, 1895.

Application filed March 26, 1894. Serial No. 505,058. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. WATTS, a subject of the Queen of Great Britain and Ireland, who have declared my intention of becoming a citizen of the United States, residing at Auburn, in the county of Walsh, in the State of North Dakota, have invented certain new and useful Improvements in Automatic Gripping Cable-Pulleys, of which the following is a specification.

This invention relates to automatic gripping cable pulleys, and consists in the construction, combination, and arrangement of parts, as hereinafter shown and described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a sectional side elevation, and Fig. 2 is a plain view. Fig. 3 is a detached perspective view, of one of the grooved conical gripping jaw guide drums. Fig. 4 is a detached perspective view, of one of the gripping jaw guide collars. Fig. 5 is a detached perspective view, of the gripping jaw actuating ring. Fig. 6 is a bottom plan view showing the manner of arranging the stop ratchet.

The apparatus consists of a framework A' in which a shaft B' is supported by suitable bearings A² and to one end of which the gearing for transmitting the power will be connected.

Keyed or otherwise connected to the shaft B' are two drums B² B³ formed slightly conical on their outer surfaces, as shown, and with a series of grooves a' formed in their outer surfaces and running lengthwise of the drums.

Between the adjacent ends of the drums B² B⁴ are two collars B⁴ and B⁵, and between these two collars is a ring B⁶ somewhat larger than the shaft so as to be free to move loosely around the shaft between the drums. Surrounding the drums B² B³ are a series of gripping jaws each formed in two portions pivoted together at b', and with outwardly curving jaws D' D² and arms D³ D⁴ at nearly right angles thereto and lying within the grooves a' within the drums, as shown. Surrounding each of the drums B² B³ are rings or guide collars D⁵ D⁶ having arches or " housings " e' through which the arms D³ D⁴ project, the arms having lugs e² on their outer ends to prevent them from being drawn inward through

the " housings," these collars D⁵ D⁶ thus serving as guides to the arms D³ D⁴, to control their action.

The inner surfaces of the hubs of the gripping jaws rest in contact with the outer surface of the loose ring B⁶, as shown.

The relative positions and formation of the jaws D' D² and the arms D³ D⁴, and the drums B² B³ are such, that when the cable d is threaded around between the curved jaws, as shown, the tension will cause the hubs to be pressed inward against the ring B⁶, (the latter yielding to the pressure so far as the shaft B' will permit,) and causing the arms B³ B⁴ to be thrown outward by the pressure of the conical drums, thereby closing the jaws D' D² upon the cable and gripping it tightly, the greater the tension the greater the grip.

The inward movement of the jaws on one side and the consequent corresponding outward movement of the ring B⁶ on the opposite side, reverses the movement of the opposite jaws and causes them to open and release their grip upon the cable, the lugs e² catching beneath the housings e' on the rings D⁵ D⁶ and holding the arms D³ D⁴ inward in their proper proximity to the drums, as shown in Fig. 1. By this simple arrangement, as the cable passes around between the jaws D' D², the jaws automatically grip it firmly on the outer side of the pulley and release it on the inner side, so that a positive tenacious " pull " is at all times had upon the shaft B' to revolve it. There is no opportunity for slipping, and the grip is positive and sure, no matter how heavy a " load " the cable may be subjected to.

To render the action more sure, I provide the outer surface of each of the jaws D' D² with a track g' which is adapted to run between rollers g² g³ journaled in an adjustable bearing M attached to the frame A', as shown in Fig. 1. By this means if for any reason the tension is not sufficient to cause the jaws to act, the rollers g² g³ will supply that deficiency and force the jaws inward upon the cable and thus insure the necessary tension. The shaft B' will be provided with a ratchet wheel B⁷ held by a pawl B⁸, to prevent the backward motion of the shaft. The frame supporting the guide wheels g² g³ will be made adjustable to compensate for wear, or change

of the size of the cable. The rings D⁵ D⁶ will be adjustable upon the drums B² B³ to allow for larger or smaller cables.

Having thus described my invention, what
5 I claim as new is—

1. In a rope or cable system for operating machinery, a shaft, grooved drums fast upon said shaft, pivoted jaws having arms fitting into said grooves, and a loose collar surrounding said shaft between said drums and adapted
10 to actuate said jaws, substantially as and for the purpose set forth.

2. In a rope or cable system for operating machinery, a shaft, grooved drums fast upon

said shaft, pivoted jaws having arms fitting 15 into said grooves, and a loose collar surrounding said shaft between said drums and adapted to actuate said jaws, said drums having guiding collars surrounding them and inclosing the free ends of said arms, substantially as 20 and for the purpose set forth.

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

JOHN H. WATTS.

Witnesses:

A. L. MILLER,
O. M. CORWIN.