

(No Model.)

J. S. BROWN.  
WINDING APPARATUS.

No. 582,171.

Patented May 11, 1897.

Fig: 1.

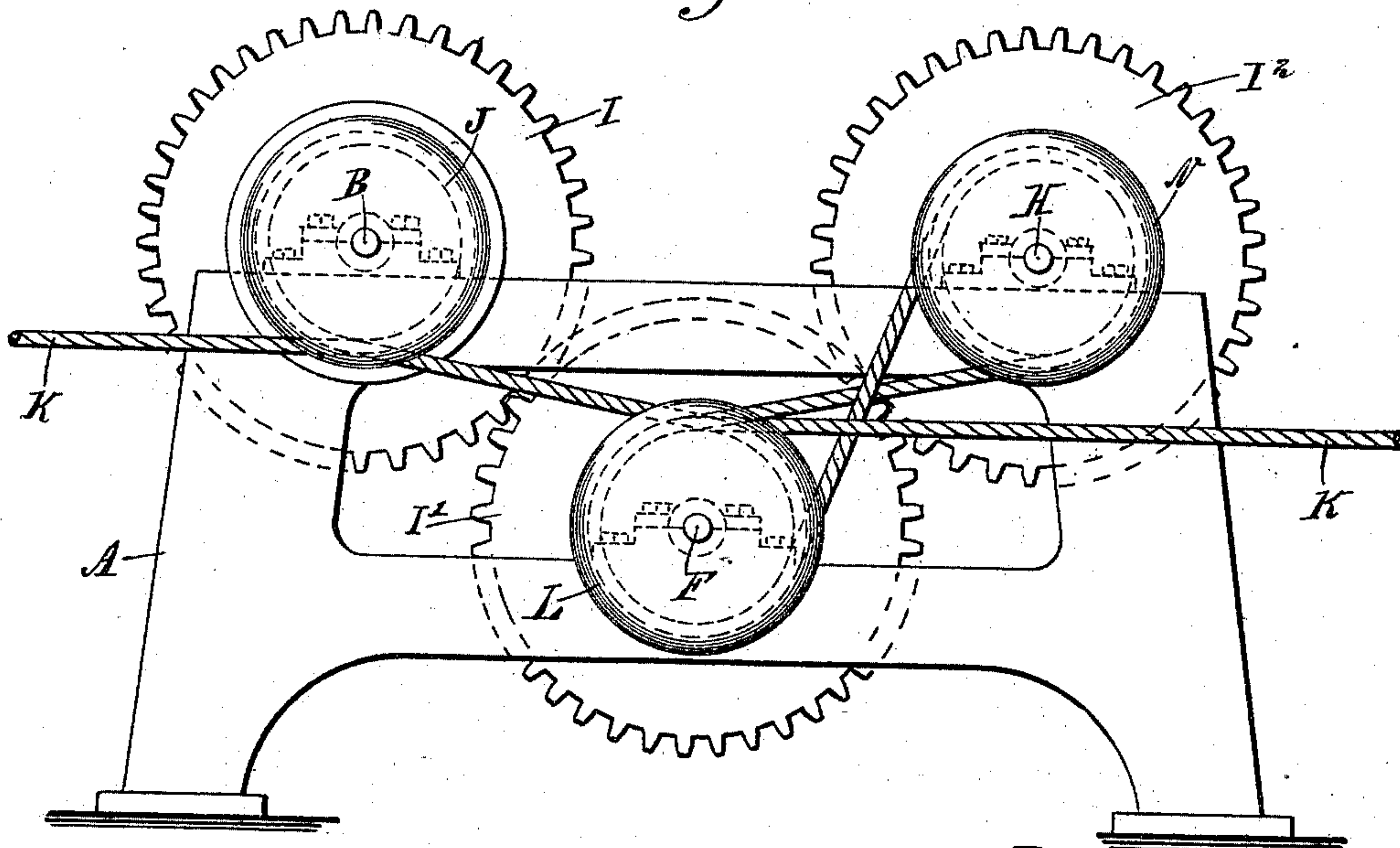
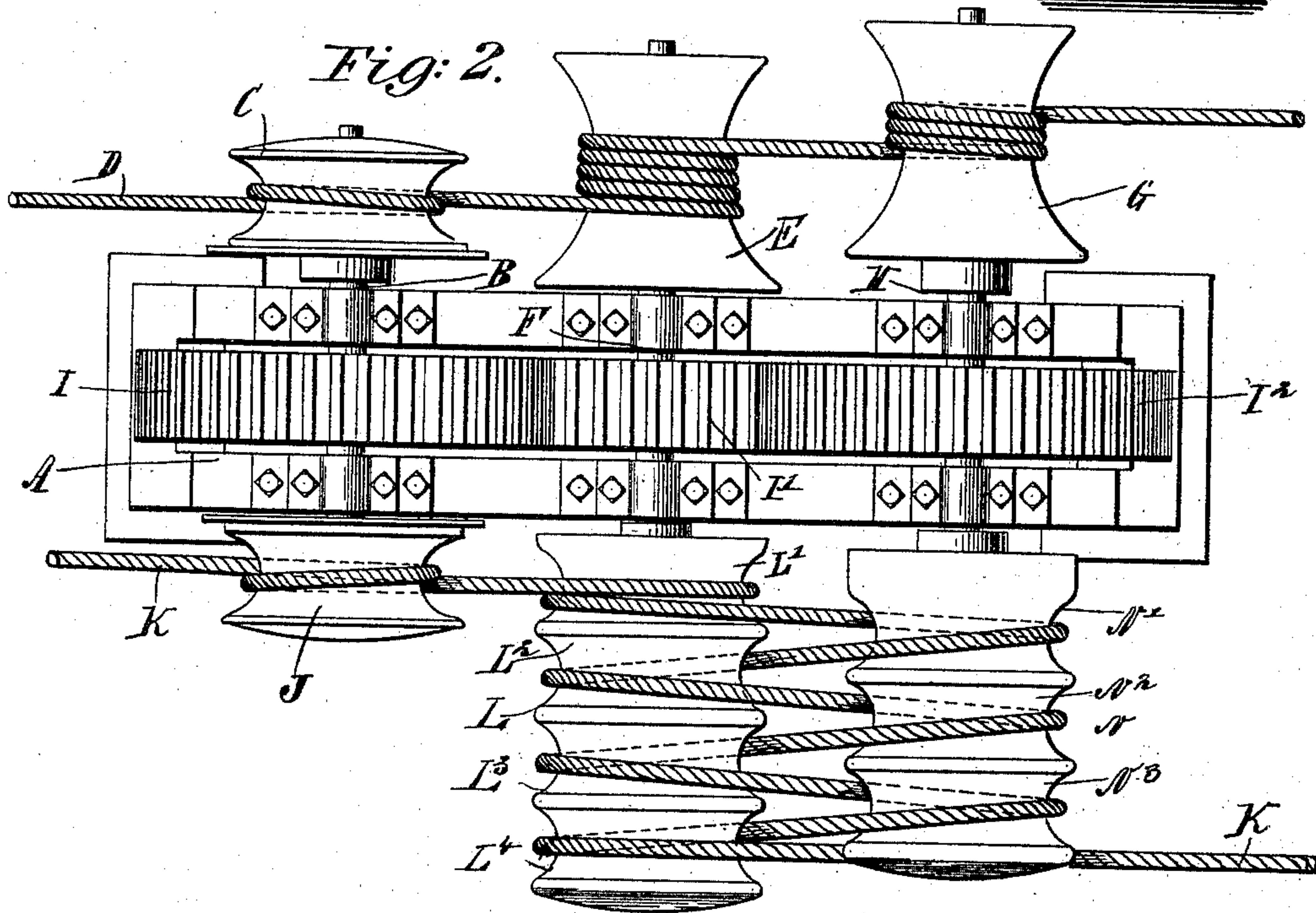


Fig: 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES S. BROWN, OF EUREKA, CALIFORNIA.

## WINDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 582,171, dated May 11, 1897.

Application filed May 25, 1896. Serial No. 592,972. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES S. BROWN, of Eureka, in the county of Humboldt and State of California, have invented new and useful  
5 Improvements in Winding Apparatus for Hoisting-Machines, of which the following is a full, clear, and exact description.

The invention relates to donkey-engines and like machines used for logging and similar purposes; and the object of the invention  
10 is to provide certain new and useful improvements in winch-heads for winding apparatus whereby wire lines or cables may be used upon winch-heads without forming kinks in the  
15 cable, whether the end or the middle of the cable is put upon the winch-heads.

The invention consists principally of a series of drums or spools mounted to rotate in unison, one of the spools receiving the line  
20 or cable from the load, the line being then wound alternately on the other spools and in separate grooves thereon.

The invention also consists of certain parts and details and combinations of the same, as  
25 will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indi-  
30 cate corresponding parts in both the views.

Figure 1 is a side elevation of the improvement, and Fig. 2 is a plan view of the same.

The object of my invention is to provide a means for hauling upon cables, especially  
35 wire cables which are of considerable length, and to do this in such a way that the cable will not be kinked. In using wire cables for hauling they are frequently of considerable length, and it is necessary to attach the cable  
40 to the winding apparatus at any point in the length of the cable. To do this upon ordinary winch-heads or gipsies will make a kink for every turn about the winch-head.

In my device I have mounted three shafts  
45 B, F, and H upon a suitable framework A. These shafts each have gears I I' I<sup>2</sup>, which mesh together, so that all the shafts turn at a uniform speed. The winch-heads are also made of equal diameters. The winch-heads  
50 might be made of different diameters by making the gear-wheels of a diameter to correspond therewith. This diameter should be

one which will give a uniform peripheral speed to the winch-heads.

I have shown my device as having two sets 55 of winch-heads differing somewhat in construction, said sets of winch-heads being placed upon opposite sides of the winding apparatus. The heads upon one side consist of the ordinary conical winch-heads G and E 60 and a spool C, which is somewhat similar in shape. Upon the opposite side they consist of longer heads, which are in reality simple grooved wheels, but having several grooves upon each wheel. The pulley or wheel J, 65 however, upon the shaft B has a single groove.

The load is supposed to be to the left of the drawings. In using the ordinary gipsy-heads E and G the cable is first coiled once 70 about the single spool C. It is then coiled in an opposite direction upon the winch-head E, and from there is taken to the winch-head G and given a number of coils about the same in a direction opposite to that used upon the 75 head E. The number of coils made in one direction should be equal to the number of coils made in the other direction. As a consequence the kinking tendency due to coil- 80 ing of the cable upon one head is counteracted by a kinking tendency in an opposite direction due to coiling upon the other head. As a result the cable is not kinked at all, and it may be applied to the winch-heads in the middle of its length without injuring the 85 cable.

In using the grooved heads J L N the cable is first coiled once about the spool J and is then coiled in an opposite direction about the 90 spool L in the inner groove. It is then coiled over the inner groove upon the spool N and in an opposite direction from that upon the spool L. It is then transferred to the next groove upon the spool L and then to the next groove upon the spool N, and so on back and 95 forth alternately upon each spool and in an opposite direction until a sufficient number of coils to hold the load have been made. In this the kinking effect is neutralized as soon as made by coiling an equal amount in the 100 opposite direction upon the other spool.

The cable as delivered from the spool when hauling in is coiled up or otherwise taken care of in any convenient manner back of the ap-



paratus. This, however, forms no part of my invention, and the means for securing this have not been shown.

My device will make it possible to use winch-heads for hauling with cables where it is necessary to throw the cable on and off and at times to attach the cable to the winding apparatus in the middle of length. This could not be secured by winch-heads of the ordinary kind.

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

1. A winding-engine having three drums supported at one end only upon shafts which are approximately parallel, a rope passing once about the first drum and alternately about each of the other drums and in opposite directions so that it has as many coils in one direction as in the other, and a positive rotative connection between said shafts whereby one of them is rotated in a direction opposite the other two, and all at the same peripheral speed, substantially as shown and described.

2. A winding-engine having three drums arranged upon parallel shafts, a rope passing once about the first drum and alternately about each of the other drums and in opposite directions so that it has as many coils in one direction as in the other, gear-wheels upon said shafts having diameters equal to the relative diameters of the drums, one of said gears

meshing with both of the others, substantially as shown and described.

3. A winding-engine having three drums in approximately the same plane and supported from one end only, a rope passing once about the first drum and alternately about each of the other drums and in opposite directions so that it has as many coils in one direction as in the other, a gear-wheel upon the shaft of each drum, one of said gears meshing with the gears of both of the other shafts, said gears having the same ratio of diameter as their connected drums, whereby a uniform peripheral speed is secured to each drum, substantially as shown and described.

4. A winding-engine having two grooved drums supported from one end only and having a plurality of grooves, a rope passing once about the first drum and alternately about each of the other drums and in opposite directions so that it has as many coils in one direction as in the other, a third drum having a single groove, and gears attached to the drum-shafts and each meshing with the gear or gears adjacent, said gears being of the same relative diameter as their drums, whereby a uniform peripheral speed is secured to each drum, substantially as shown and described.

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Witnesses:

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