(No Model.) 2 Sheets—Sheet 1.

J. WALKER.

WINDING DRUM FOR CABLE RAILWAYS.

No. 469,338. Patented Feb. 23, 1892.

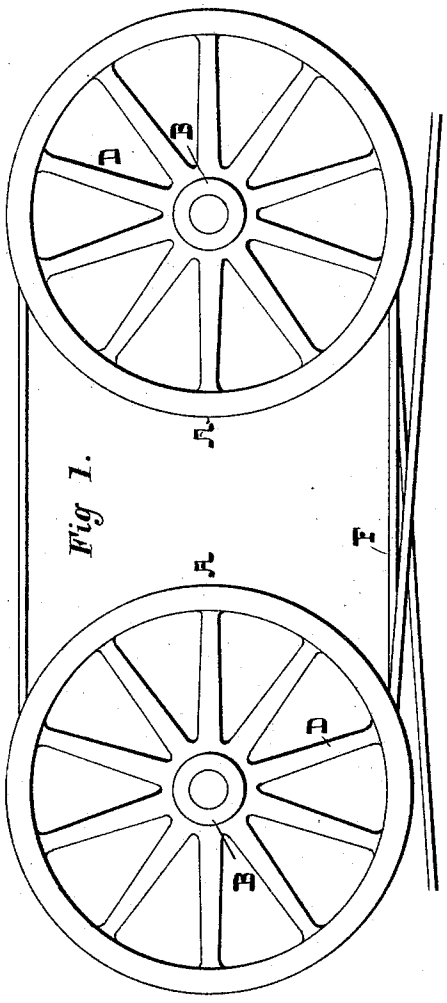

Fig 1.

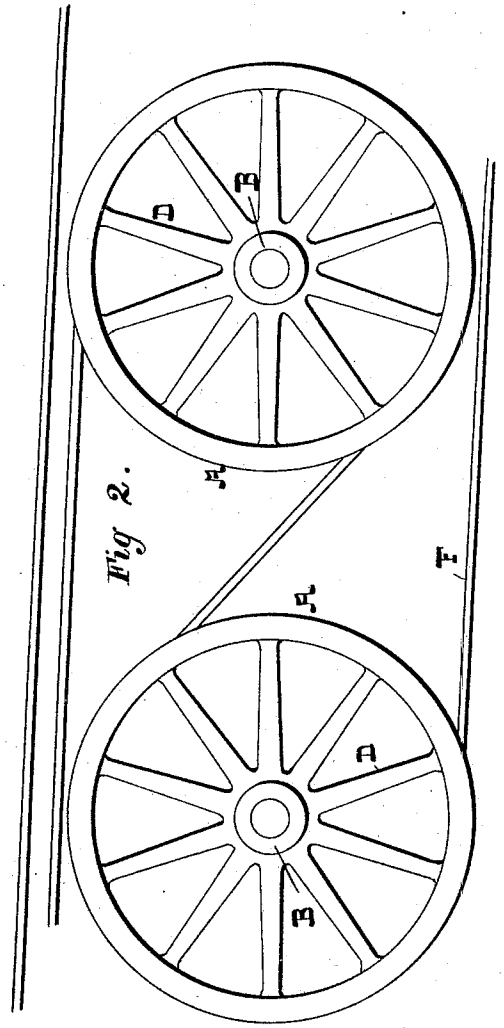

Fig 2.

WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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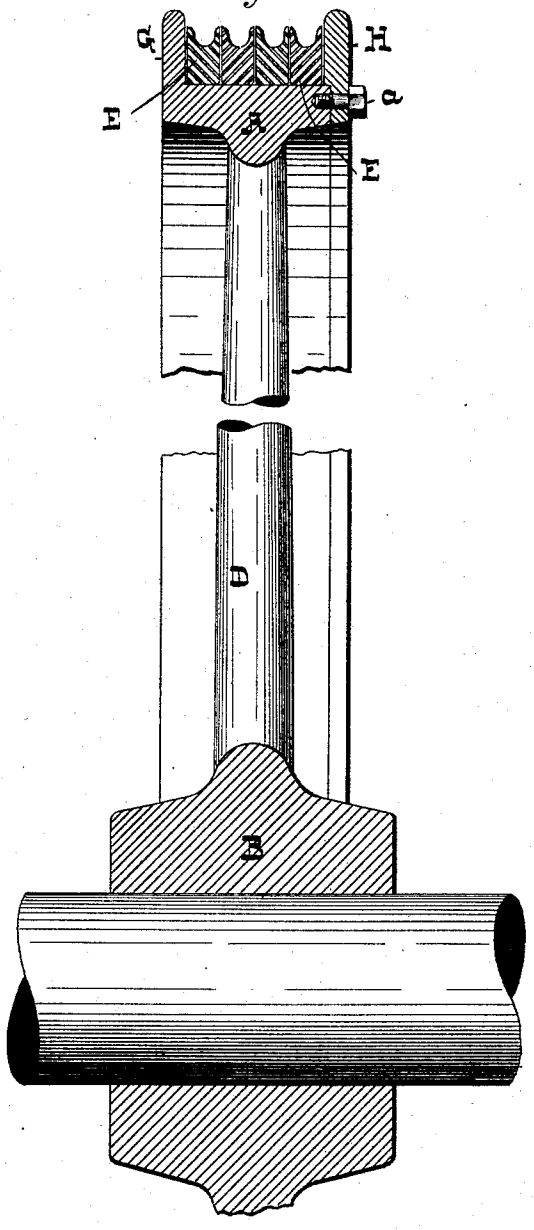
Fig 3.



-WITNESSES-

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UNITED STATES PATENT OFFICE.

JOHN WALKER, OF CLEVELAND, OHIO.

WINDING-DRUM FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 469,338, dated February 23, 1892.

Application filed March 8, 1889. Serial No. 302,432. (No model.)

To all whom it may concern:

Be it known that I, JOHN WALKER, of the city of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain Improvements in Winding-Drums for Cable Railways and for other Purposes, of which the following is a specification.

This invention relates to certain improvements in Letters Patent No. 387,024, granted to me on the 31st day of July, 1888, for certain improvements in drums for cable railways, to which reference should be had. In the said Letters Patent the nature and object of the said invention is set forth in substantially the following words: To fully understand the nature of my said invention, it must be known that in the winding operation the greatest wear of the drum takes place at the bottom of the first groove, or the groove which receives the incoming cable. I find that the difference in circumference of the various grooves of the drums, caused by inequality of wear, is the chief cause of the breakage of cables—as, for instance, if by constant wear the depth of the first groove is increased one-quarter of an inch the circumference of the said groove is decreased a little more than one and a half inches. With this condition of the first groove the cable in passing from the first to the second groove, provided the second groove is not worn to any appreciable extent, has to stretch one and a half inches or else slide forward that much in the first groove of the drum. I obviate this defect by forming all the grooves, except the first one, in peripheral rings adapted to turn independently of each other and of the drum. By this means any difference in the circumference of the grooves is compensated for by the independent circumferential movement of the rings and no strain is placed on the cable over and above that to which it is subjected in drawing the cars; but with drums constructed as above described the loose rings, while they obviate all difficulties arising from different diameters of grooves, do not at once equalize the tension of the cable throughout the various wraps or coils of the same when the strain is suddenly increased or reduced by adding to or taking from the number of cars connected to the cable. To effect this distribution, I make all the cable-grooves in rings adapted to turn independently of the drum and dispense with the frictional contact of the rings with each other and with the flanges of the drum.

To illustrate the advantage of having all the cable-grooves in loosely-turning rings, we will suppose that the normal strain on the cable is ten thousand pounds and by attaching or detaching cars the strain is suddenly raised to thirteen thousand pounds or lowered to seven thousand pounds. The grooved rings adjust themselves circumferentially on the drums independently of each other until every part of the cable in the wraps is subjected to the increased or diminished strain. The first grooved ring will of course receive the greatest movement, the others moving until the increased or diminished strain is distributed. In other words, if the strain on the cable is increased or diminished the first grooved ring will immediately respond to the change in the tension of the cable by moving forward or backward on the drum and the other rings will move independently of each other, so as to distribute the difference in tension throughout the wraps. It will be understood that as all the grooved rings are loose the movement of the driving-drum is communicated to them and through them to the cable entirely by friction, which is at all times automatically applied in proportion to the amount of work to be done.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a side elevation of the two winding-drums and a portion of the cable, the latter being reeved according to what is termed the "loop system." Fig. 2 is a view similar to the preceding one, except that the cable is reeved so as to form what is known as a "figure **8**." Fig. 3 is an enlarged cross-section of a portion of one of the drums made in accordance with my invention.

Similar letters of reference indicate similar parts in all the figures.

In the said drawings, A represents the rim, B the hub, and D the arms, of the drums.

E E are circumferentially-grooved rings

placed side by side on the smooth periphery of the drums and all adapted to move independently of each other and of the drum.

As in Letters Patent No. 387,024, the grooved rings are preferably made of wrought-iron or steel, which will resist abrasion better than cast-iron.

The cable is denoted by F.

G represents the fixed flange, and H the loose one, secured to the drum proper by means of bolts *a*.

I claim as my invention—

1. A driving-drum for a cable railway, having all its cable-grooves in peripheral rings, which are adapted to turn independently of the said drum, combined with a similar drum and a cable reeved around the said rings of the two drums, substantially as and for the purpose specified.

2. A driving-drum for a cable railway, having all its cable-grooves in peripheral rings, which are adapted to turn independently of the said drum, substantially as and for the purpose specified.

JOHN WALKER.

Witnesses:
J. J. BEVER,
W. H. BONE.