(No Model.)

# S. DIESCHER & J. J. McGILL.

## WINDING OR DRIVING DRUM.

No. 387,775. Patented Aug. 14, 1888.

FIG. 1.

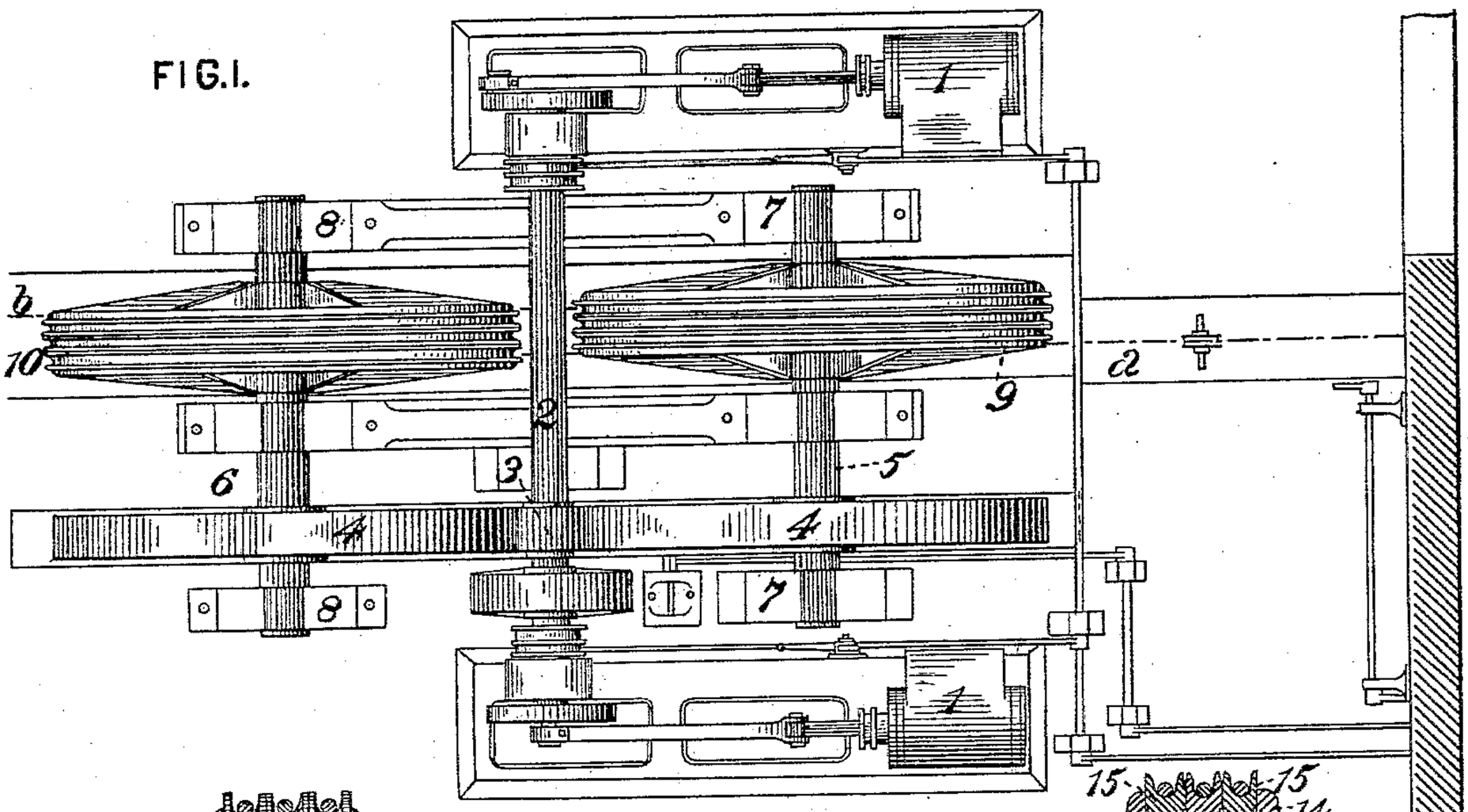



FIG. 2.

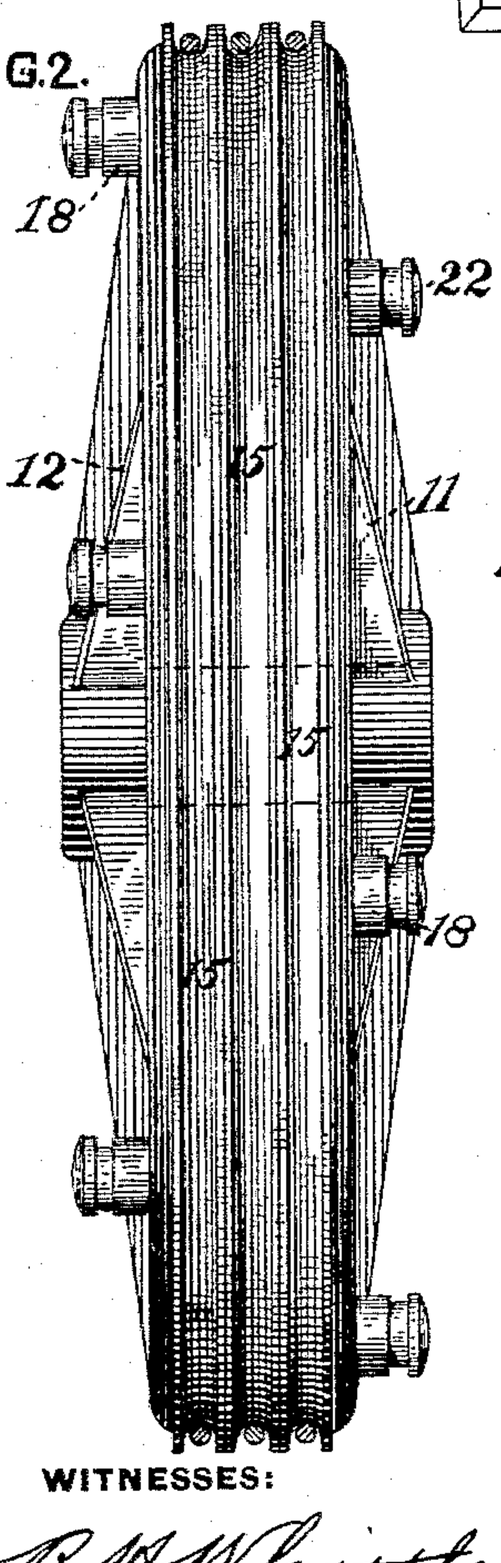



FIG. 4.

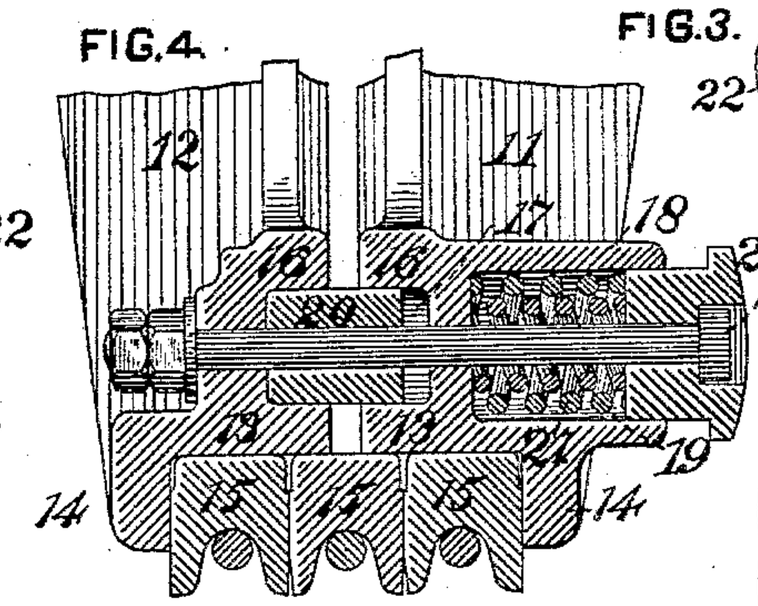



FIG. 3.

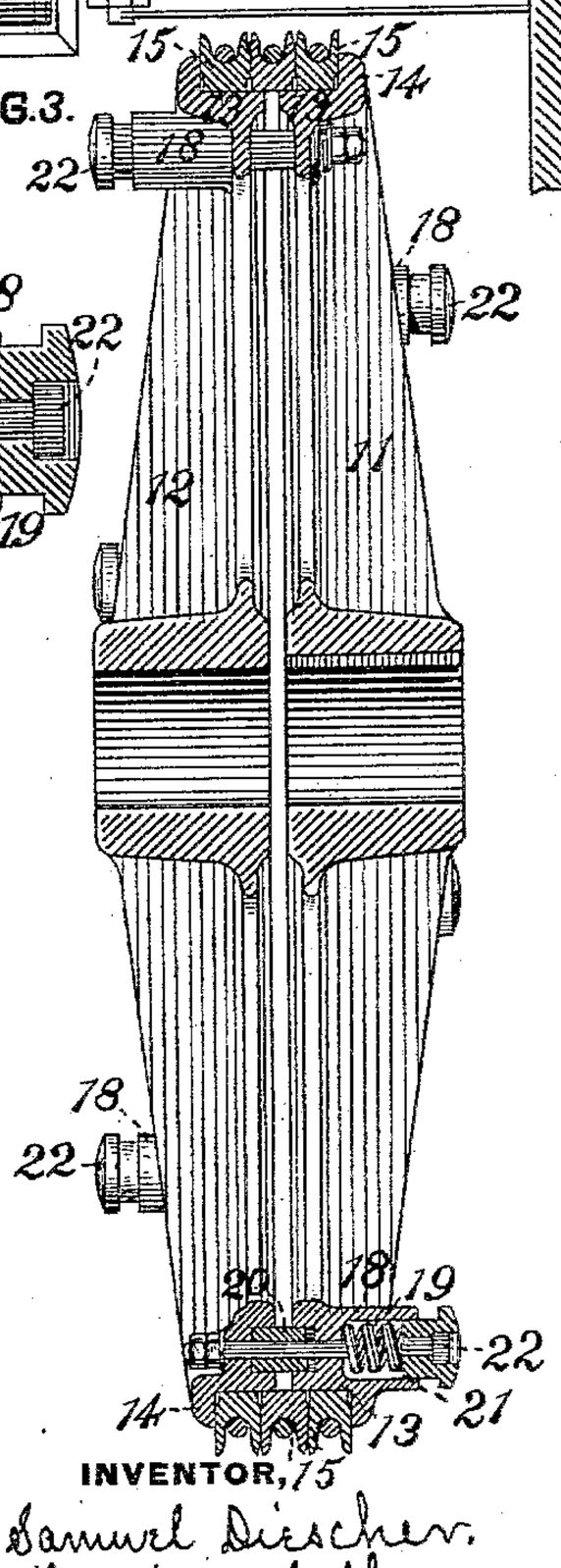
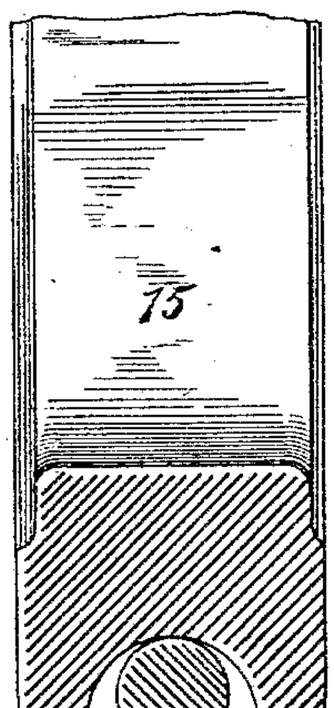



FIG. 5.







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# UNITED STATES PATENT OFFICE.

SAMUEL DIESCHER AND JOHN J. McGILL, OF PITTSBURG, PENNSYLVANIA.

## WINDING OR DRIVING DRUM.

SPECIFICATION forming part of Letters Patent No. 387,775, dated August 14, 1888.

Application filed January 27, 1888. Serial No. 262,126. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL DIESCHER and JOHN J. McGILL, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Winding or Driving Drums, of which improvement the following is a specification.

The invention herein relates to certain improvements in the construction of the winding or driving drums employed in imparting motion to the cables of cable railways. These drums have heretofore been formed in one piece or casting, the grooves in the perimeter being either entirely or partially formed by turning, or the drum was formed of a series of two or more independent sheaves. As the drums are usually of large diameter, it has been found to be practically impossible to make all of the grooves of exactly the same diameter; hence when two or more turns of the cable around one or two drums and the diameters of the drum or drums where the cable is in contact differ there will be an action similar to that of the differential pulleys, but with this difference in circumstances, that in the differential pulleys the two pulleys can approach each other, or there is sufficient slack in the rope to compensate for the differences of diameter, whereas in the winding-drum neither of these conditions are present, and hence either the cable must slip on the drum or else the cable will be broken. The latter is more likely to occur, as the tighter the rope is drawn onto the drum the less likelihood or possibility is there of any slip occurring.

The object of the invention herein is to compensate for this differential action of the driving-drums by the employment of yielding or slipping rings, which shall in the exertion of a certain predetermined force yield sufficiently in a circumferential direction to compensate for any differences of diameter.

In general terms, the invention consists in the construction and combination of mechanical devices or elements, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of the driving mechanism of a cable railway embodying our invention. Fig. 2 is a view in elevation of one of the drums on an enlarged scale. Fig. 3 is a sectional view of the same. Fig. 4 is a sectional view of one of the clamping devices, and Fig. 5 is a similar view of one of the grooved rings.

The driving mechanism shown in Fig. 1 consists of the engines 1, connected to the main driving-shaft 2, having the pinion 3 keyed thereto. This pinion intermeshes with the gear-wheels 4, keyed to the counter-shafts 5 and 6, mounted in suitable bearings, 7 and 8, the latter being arranged on a lower level than the former, so as to permit the part *a* of the cable passing to the drum 10 to clear the periphery of the drum 9. These drums are keyed to the counter-shafts 5 and 6 between the bearings, and are arranged out of line with each an amount approximately equal to the width of the grooves in the drums, so as to allow the part *a* of the cable to pass in an approximately straight line to the receiving-groove of one drum—*i. e.*, the drum 10—and from the delivery-groove of the drum 9.

In lieu of forming these drums solid or with a practically integral rim and then cutting the grooves therein, as has been the practice heretofore, we propose to form each drum of two similarly-constructed parts, 11 and 12. These parts are constructed as regards their body portions in any suitable manner; but on the outer edges of the rims 13 are formed flanges 14, adapted to form when the two parts are secured in proper relation to each other a peripheral recess or trough for the reception of the rings 15, whose internal diameter is approximately equal to the external diameter of the rims of the parts 11 and 12, so that said rings will fit easily, but not loosely, onto said rims. Inside of the rims are formed a series of bosses, 16, having sockets 17, formed therein, opening inwardly, and every alternate boss on each of the parts is formed with an external enlargement, 18, in which is formed a socket, 19. In segregating the parts forming the drums one or more of the rings, which have been grooved peripherally, are placed on the rims 13 between the flanges 14, as shown. Locking-blocks 20 are placed in the recesses formed by the sockets 17, and a stiff spring, 21, is placed in the sockets 19. A bolt, 22,

provided with a head or follower adapted to fit within the socket and bear upon the spring 21, is then passed through each of the sockets 17 and 19 and the locking-blocks 20. The two parts 11 and 12 of the drum are then drawn toward each other by screwing up the nuts on the bolts 22, and as the united thicknesses of the rings 15 is greater than the distance between the flanges 14, when the inner faces of the two parts are in contact, it follows that said rings will be clamped together by screwing up the nuts on the bolts 22; but on account of the interposition of the springs 21 the rings will be yieldingly clamped in position, unless the nuts are screwed up to such an extent as to close the coils of the springs.

In securing the drums upon the countershafts 5 and 6 only one of the parts, as 11, is keyed thereto, the part 12 being locked thereto by the blocks 20, which are of a length somewhat greater than the depth of the sockets 17.

While preferring to arrange the springs 21 alternately half on one of the parts, as 11, and half on the other part, any other arrangement thereof may be made.

The cable passes along the first groove of the drum 10, thence to the first groove of the drum 9, and then back and forth for as many turns as may be desired, and finally passes from the last groove of the drum 9 to a tension device. (Not shown.) The screws on the bolts 22 are screwed up until the rings are clamped sufficiently tight together to prevent their movement under the normal strain to which they will be subjected under normal conditions; but as soon as any one of the rings is subjected to a greater strain than normal by reason of greater peripheral length of the surface in contact with the cable, said ring will be stopped while the other rings move along for a sufficient length of time to compensate for its greater peripheral speed.

We claim herein as our invention—

1. A winding-drum formed in two parts, in combination with two or more rings, the two parts of the drum having a spring-bearing upon the rings, substantially as set forth.

2. A winding-drum formed in two parts, each part being provided with a flanged rim, in combination with two or more rings interposed between the flanges of the rim, and bolts having a spring-bearing for clamping the parts together, substantially as set forth.

3. A winding-drum formed of two parts, each part being provided with two or more sockets, in combination with two or more locking-blocks engaging said sockets, substantially as set forth.

In testimony whereof we have hereunto set our hands.

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