

(No Model.)

3 Sheets—Sheet 1.

F. A. J. BEIGEL.

DRIVING DRUM FOR RAILWAY CABLES.

No. 385,230.

Patented June 26, 1888.

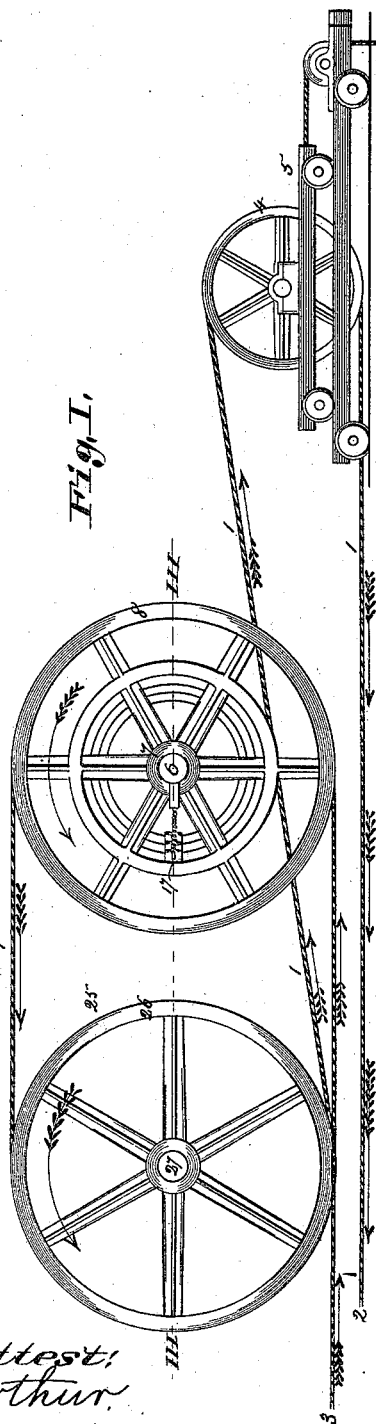


Fig. I.

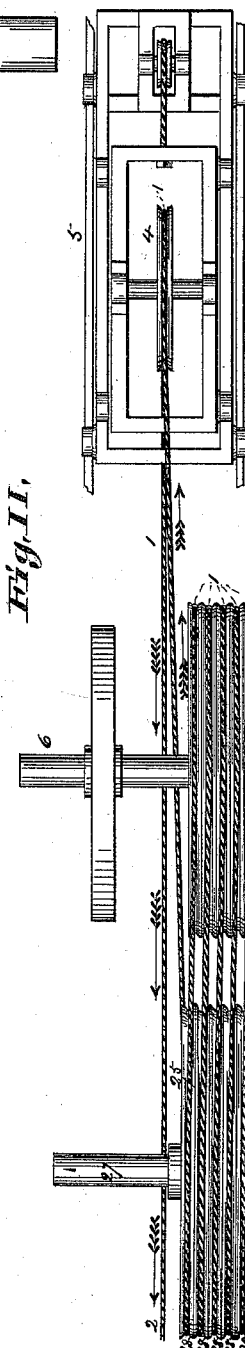


Fig. II.

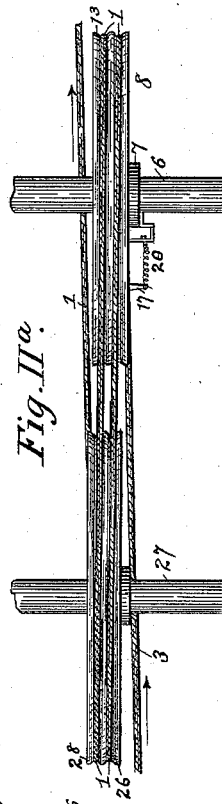


Fig. IIa.

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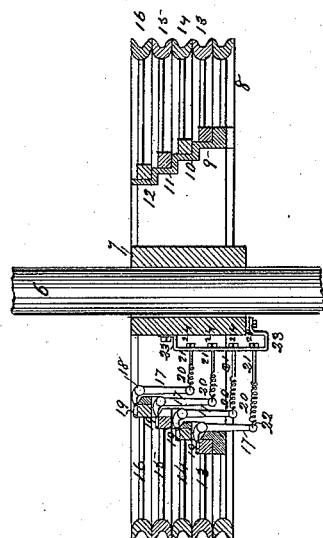


Fig. III.

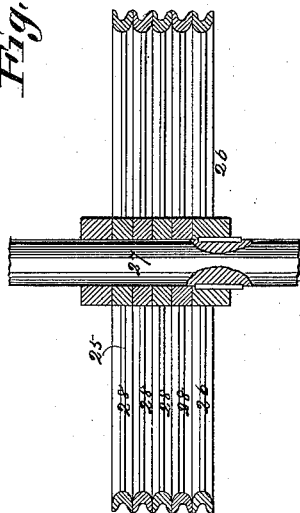
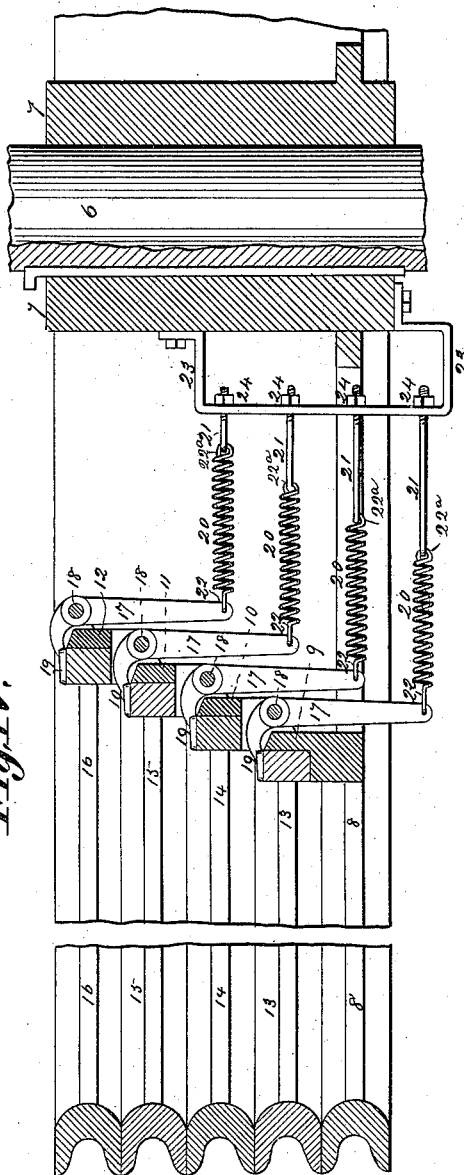


Fig. IV.



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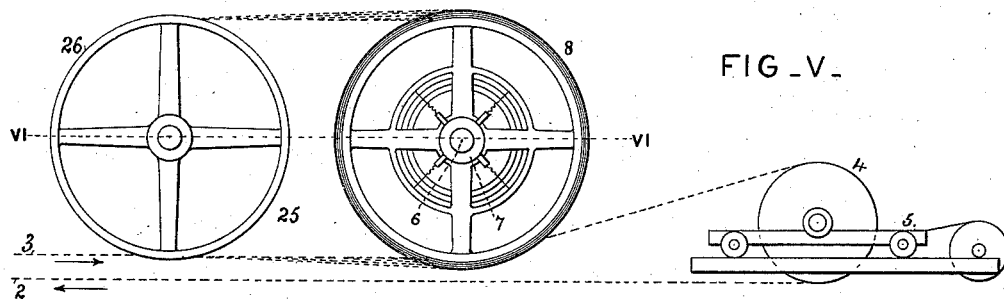


FIG. V.

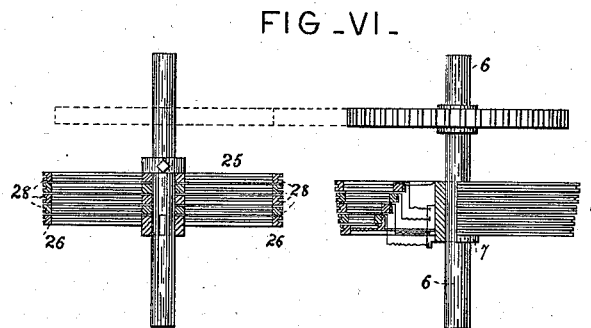


FIG. VI.

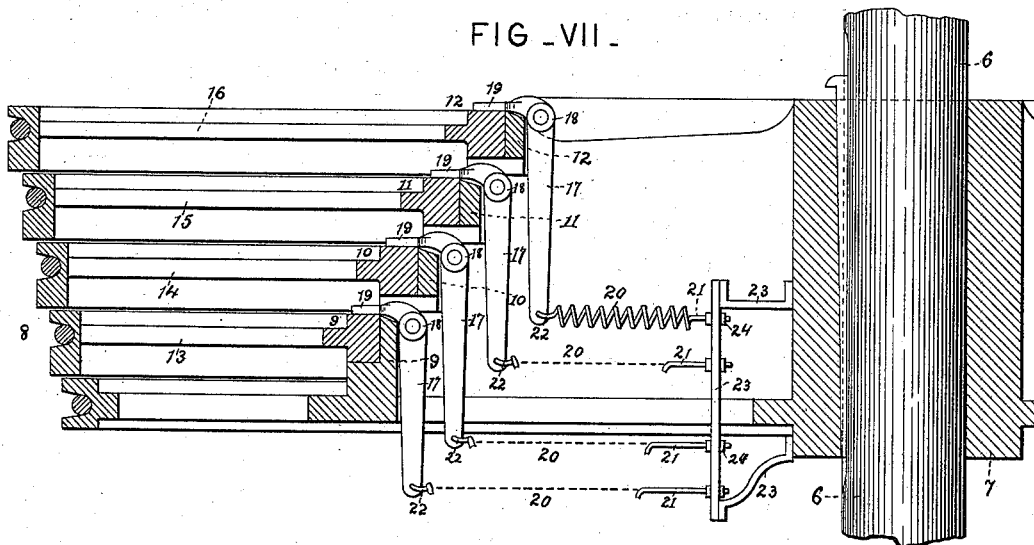


FIG. VII.

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UNITED STATES PATENT OFFICE.

F. A. JOHN BEIGEL, OF ST. LOUIS, MISSOURI.

DRIVING-DRUM FOR RAILWAY-CABLES.

SPECIFICATION forming part of Letters Patent No. 385,230, dated June 26, 1888.

Application filed November 10, 1887. Serial No. 254,831. (No model.)

To all whom it may concern:

Be it known that I, F. A. JOHN BEIGEL, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Driving-Drums for Railway-Cables, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

To prevent stretching or slipping of the cable on the driving-drum, the drum is made up of a fast pulley and several loose pulleys, all but one (the fast pulley) of which are driven by frictional bearing on a stepped extension of the fast pulley. Each pulley is grooved at the periphery to receive the cable, and the loose pulleys are made of gradually-increasing diameter from the fast pulley to and including the one most distant therefrom, so that each will do its share in drawing the cable, while it will slip backward on the stepped extension of the fast pulley rather than stretch the cable or cause the cable to slip in the groove. There is a means for adjusting the amount of friction between the fast pulley and the loose pulleys.

Figure I is a side elevation of the device. Fig. II is a top view of the same. Fig. II^a is a modification. Fig. III is a section at III III, Fig. I. Fig. IV is an enlarged detail section of the driving-drum at III III, Fig. I. Fig. V is a side elevation of the device showing the driving-drum having loose pulleys of gradually-increasing diameter. Fig. VI is a section at VI VI, Fig. V. Fig. VII is an enlarged section of the driving-drum at VI VI, Fig. V.

1 is the railway-cable, whose ends 2 and 3 extend along the line of railway, as usual. The direction in which the cable runs is indicated by arrows. The cable is carried around a pulley, 4, of a stretching device, 5, of any suitable construction.

6 is the shaft of the driving-drum, which may be driven by any proper means.

7 is a hub keyed fast to the shaft.

8 is a fast pulley, which is grooved circumferentially, and which is cast upon the hub or otherwise made fast thereto.

9, 10, 11, and 12 are annular steps or bearings upon one side of the fast pulley, having decreasing diameter from the pulley 8.

13, 14, 15, and 16 are a number of grooved

loose pulleys, whose hubs fit closely the steps or bearings 9, 10, 11, and 12, respectively. The fit is not, however, so tight as to prevent each loose pulley turning on its bearing or step. The pulleys are preferably in contact with each other at the rims, so as to mutually brace each other.

17 are bell-crank levers, of which there is one or more for each of the loose pulleys. The levers are fulcrumed at 18 to the steps or bearings.

19 is a brake-shoe on the shorter arm of each of the levers, said shoe bearing against the hub of one of the pulleys, (13 14 15 16,) so as to produce friction and check the rotation of the pulley on the step or bearing.

20 are strong springs attached by hooks 22 to the long arms of the levers 17.

21 are screw-rods secured to the ends of the springs by hooks 22^a, as shown, and passing through a bracket, 23, fixed to the hub.

24 are nuts on the rods 21, which bear against the inner sides of the bracket, and which give means for increasing or diminishing the tension of the springs 20. It will be seen that by increasing the tension of the springs the friction on the loose pulleys is increased, so that there will be increased resistance to the turning of the pulleys on the bearings or steps on the fast pulley. As shown in Figs. V, VI, and VII, the diameter of the pulley 13 is slightly in excess of the diameter of pulley 8, that of pulley 14 in excess of pulley 13, and so on to pulley 16, the diameter increasing slightly from the fast pulley 8 to the pulley 16 upon the other side. The purpose of this is to insure that each of the frictionally-driven pulleys does its full share of the work in driving the cable, while at the same time the stretching of the cable or backward slip on the pulleys (13 14 15 16) is avoided by the backward slip of the pulley on its bearings or step. There may be any number of the friction levers and shoes to each loose pulley, said shoes extending all around, if preferred.

The guide-drum 25 is composed of one pulley, 26, made fast to the shaft 27, and a number of separate loose pulleys, 28, which, by turning freely, accommodate themselves to the cable under its different degrees of tension and prevent all friction from that cause.

I do not limit myself to a series of loose pul-

leys on the stepped extension of the fixed pulley on the drive-shaft, as I may employ a single loose pulley, as shown in Fig. II^a.

I claim as my invention—

5 1. The combination of a drive-shaft, a grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, and a grooved loose pulley on the stepped extension driven by frictional contact with the fast pul-
10 ley, substantially as described.

2. The combination of a drive shaft, grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, and a grooved loose pulley of greater diameter on the stepped ex-
15 tension driven by frictional contact with the fast pulley, substantially as described.

3. The combination of a drive-shaft, a grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, and grooved
20 loose pulleys on the stepped extension driven by frictional contact, substantially as described.

4. The combination of a drive-shaft, a grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, and grooved
25 loose pulleys of gradually-increasing diameter on the stepped extension driven by frictional contact, substantially as described.

5. The combination of a drive-shaft, a grooved fast pulley on the drive-shaft, said fast
30 pulley having a stepped extension, a grooved loose pulley on the stepped extension, and a friction-brake between the fast pulley and the loose pulley, substantially as described.

6. The combination of a drive-shaft, a
35 grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, grooved

loose pulleys on the stepped extension, and friction-brakes between the fast pulley and the loose pulleys, substantially as described.

7. The combination of a drive-shaft, a
40 grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, a grooved loose pulley on the stepped extension, and a friction-brake secured to the stepped extension and bearing against the hub of the loose
45 pulley, substantially as described.

8. The combination of a drive-shaft, a grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, a grooved
50 loose pulley on the stepped extension, a brake-lever having a shoe bearing against the loose pulley, and an adjusting-screw connected indirectly with the brake-lever, substantially as described.

9. The combination of a drive-shaft, a
55 grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, a grooved loose pulley on the stepped extension, a brake-lever having a shoe bearing against the loose pulley, adjusting-screw, and spring connecting
60 the brake-lever with the adjusting screw, substantially as described.

10. The combination of a drive-shaft, a grooved fast pulley on the drive-shaft, said fast pulley having a stepped extension, a grooved
65 loose pulley on the stepped extension, a guide-shaft, and a fast pulley and a loose pulley on the guide shaft, substantially as described.

F. A. JOHN BEIGEL.

In presence of—

SAML. KNIGHT,

BENJN. A. KNIGHT.