O. THOMAS.

BRIDGE.

APPLICATION FILED FEB. 8, 1909.

926,034. Patented June 22, 1909.

Fig. 1.

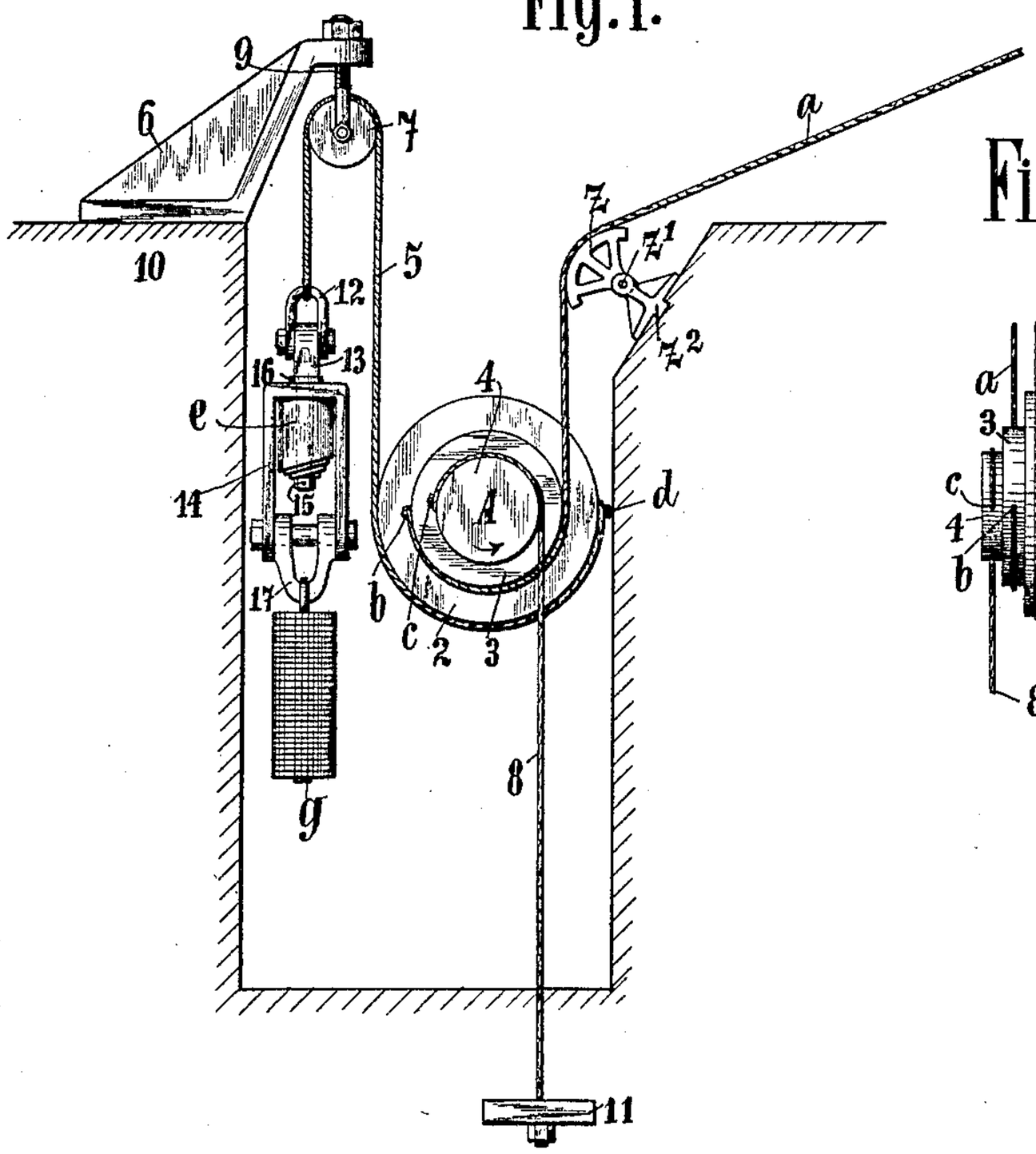

Fig. 2.

Witnesses.

Jesse K. Sutton.

B. Bommers

Inventor.

Oscar Thomas

by Henry Orth Jr

Atty.

UNITED STATES PATENT OFFICE.

OSCAR THOMAS, OF GRÜNBERG, SILESIA, GERMANY.

BRIDGE.

No. 926,034. Specification of Letters Patent. Patented June 22, 1909.

Application filed February 8, 1909. Serial No. 476,744.

To all whom it may concern:

Be it known that I, OSCAR THOMAS, a subject of the King of Prussia, residing at Grünberg, Silesia, Germany, have invented certain new and useful Improvements in Bridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in bridges and has for its object special anchoring means for the cables of bridges and more particularly to anchoring means for the relieving cables of bridges of the type described in my U. S. Patent No. 903,630, dated November 10, 1908.

Referring to the drawings in which like parts are similarly designated, Figure 1 is a side elevation of the device for anchoring a relieving or other cable *a* and Fig. 2 is a front elevation of the roller having the cable end or ends attached thereto.

The relieving cable or cables *a*, which may be a single cable or a number of cables placing side by side, pass over a member capable of permitting a movement of the cable and herein shown as a segment *z* pivoted at *z'* to a suitable pedestal or support and thence to a differential or stepped roller A. This roller as more clearly shown in Fig. 2 has portions 4 of small diameter, portions 3 of intermediate diameter and a portion 2 of maximum diameter all made in one piece or in separate pieces rigidly connected together. The relieving cables *a*, here shown as two cables arranged side by side, are secured to that portion 3 of the roller A that is of intermediate diameter at points *b*, one on each side of the portion 2 of the largest diameter, and pass around the lower portion of the periphery of said portions 3. The portions 4 of smallest diameter have secured to them at the points *c* and preferably, but not necessarily, in the same radial plane as the point *b*, ropes or chain 8 which pass over the upper portion of the parts 4 of the differential roller and thence downward to an anchor 11 secured in the masonry. The portion 2 of largest diameter has secured to it at the point *d*, preferably but not necessarily, diametrically opposite the points *b* and *c*, a cable or chain 5 which passes beneath the portion 2 and then upward over a pulley 7 and is connected by means of a shackle 12 with a bolt 13 sliding in a fork 14 and carrying a nut 15 and a shoulder 16. On the bolt 13 a spring *e* is arranged, which usually presses the shoulder 16 against the fork 14. This fork is at its under end by means of a shackle 17 connected with a counterweight *g*. The pulley 7 is mounted in a fork 9 suspended from a suitable bracket 6 secured to the masonry abutment 10.

The size and weight of the mechanism depends upon the tension to be maintained in the relieving cable *a*.

The bridge under the action of the live load will give and it is desirable that the relieving cables shall also yield without having their tension diminished and this is possible by the mechanism I have shown and described. The live load causes the cable *a* to lengthen somewhat without decreasing the amount of tension in it, so that the point *b* will rotate in the direction of the arrow thereby unwinding the cable from the intermediate portion or portions 3. The pivoted sector *z* at the same time moving on its pivot *z'* to a slight extent. The rotation of the roller A in the direction of the arrow causes the point *c* to which the anchor cables 8 are secured also to move and consequently wind upon itself the anchoring cables 8 and move the roller A as a unit downward. The point *d* simultaneously moves upward to wind upon the portion 2 of greatest diameter the chain or cable 5 on which the counterweight *g* is suspended.

The spring *e* between the end of the cable or chain 5 and the counterweight *g* is inserted for the purpose of relieving the shock due to the sudden movement of the weight by reason of a sudden live load on the bridge, but this spring may be omitted in many cases when desired.

My invention can be applied to the various forms of bridges shown in my U. S. Patent above mentioned and it is particularly advantageous for turning bridges, and considerably cheapening their cost of construction.

I claim:

1. In a bridge structure, the combination with a cable, of a stepped roller, an anchor chain or cable secured to the roller and a counterweight chain or cable secured to the roller.

2. In a bridge structure, the combination with a cable, of a stepped roller, having portions of maximum, minimum and intermediate diameters, the cables being secured to the intermediate diameter, an anchor chain or cable secured to that portion of the roller of minimum diameter and a counterweight cable or chain secured to that portion of the roller of maximum diameter.

3. In a bridge construction, the combination with a cable, of a stepped roller having portions of maximum, minimum and intermediate diameters, the cable being secured to the intermediate diameter, a movable bearing for the cable proximate the roller, an anchoring chain or cable secured to that portion of the roller of minimum diameter and a counterweight cable or chain secured to that portion of the roller of maximum diameter, a counterweight secured to the chain and a spring intermediate the counterweight and the end of the chain.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

OSCAR THOMAS.

Witnesses:
HARRY A. MCBRIDE,
ULYSSES J. BYWATER.