(No Model.)

C. A. BURTON.

BALL BEARING FOR CABLE RAILWAY SHEAVES.

No. 458,517. Patented Aug. 25, 1891.

Fig. I.

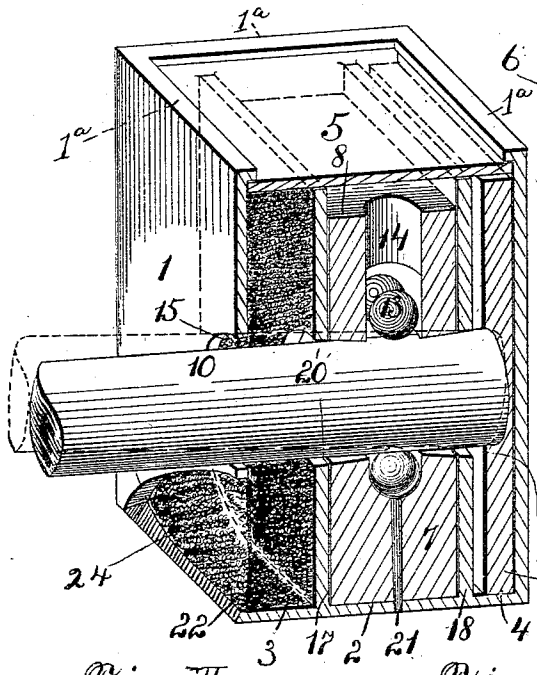


Fig. II.

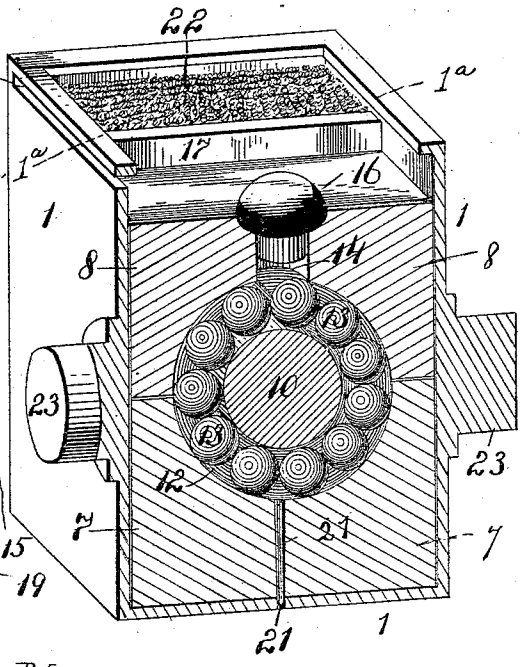


Fig. III

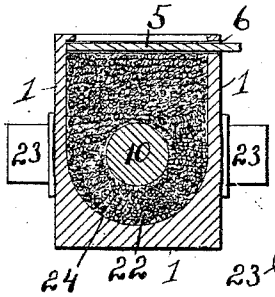
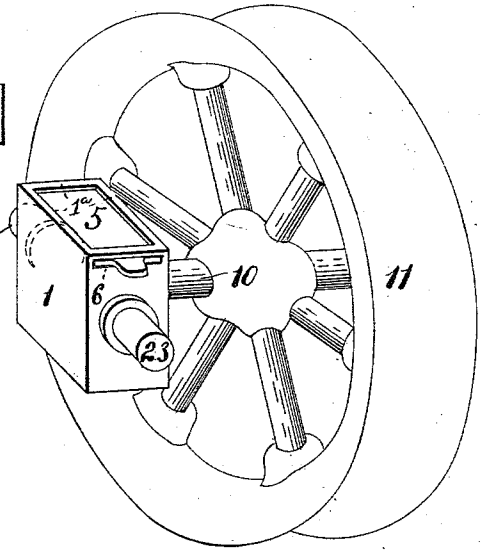


Fig. IV.



Witnesses:
S. G. Fischer
George E. Crum

Inventor:
C. A. Burton,
By Wright Bros.
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CLARENCE A. BURTON, OF KANSAS CITY, KANSAS.

BALL-BEARING FOR CABLE-RAILWAY SHEAVES.

SPECIFICATION forming part of Letters Patent No. 458,517, dated August 25, 1891.

Application filed April 20, 1891. Serial No. 389,712. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE A. BURTON, of Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Ball-Bearing Boxes for Cable-Railway Sheaves, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My improvement relates to a certain new and useful device for the support of sheaves, &c., intended more especially for cable railways; and my invention consists in certain features of novelty in connection therewith, hereinafter described, and pointed out in the claims.

Figure I is a vertical longitudinal section, in perspective, of my improved box, showing the manner of supporting the axle of the sheave in the ball-bearings. Fig. II is a vertical transverse section, in perspective, of the supporting-box and axle of the sheave, showing removable blocks or dies for supporting the ball-bearings. Fig. III is a vertical longitudinal section of the box, showing packing for retaining lubricant and slide for closing the upper end of the box. Fig. IV is a perspective view of the sheave, the manner of supporting the same in the box, and the trunnions on the box whereby the same is supported in a conduit or other desired place.

Referring to the drawings, 1 represents my improved box having horizontal flanges 1^a, said box being supplied with a central chamber 2 and side chambers 3 and 4.

5 represents a lid or slide for inclosing the box after the various parts have been placed therein, said slide being inserted in a groove 6, which is located near the upper end of the box and held in place by the flanges 1^a.

7 and 8 represent the removable blocks or dies for supporting the balls which form a bearing for the axle 10 of the sheave 11. The blocks 7 8 are formed in two sections, the section 7 being first placed in the chamber 2 of the box 1 and the section 8 placed on top of the section 7 and supported thereby. In sections 7 8 is a circular chamber 12, into which the balls 13 are placed to form a bearing for the axle 10. The section 8 is supplied with an opening 14, through which the balls may be introduced into the chamber 12 after the axle 10 has been placed in position in a transverse opening 15 in the blocks 7 8.

16 represents a plug, which may be placed in the opening 14 after the balls have been placed in position, said plug preventing any foreign substances from passing into the bearing. The axle 10 extends through the outer wall of the box on its inner side, through the chamber 3 and through the chamber 2, through the division-walls 17 18, and abuts against a hardened metal plate 19, located in the chamber 4, said plate preventing the end of the shaft 10 from wearing the sides of the box 1, thus preventing any end movement of the axle 10. The blocks 7 8 and walls or partitions 17 18 are beveled outwardly, as shown at 20, Fig. I, by which means the axle 10 is permitted to work freely on the ball-bearings without binding in case the opposite end of the axle should be on a higher or lower plane, (see Fig. I,) the blocks and partitions thus allowing one end of the shaft to be set higher or lower, if desired, than the opposite end and still work freely without binding or wearing on the box or blocks. The lower block 7 is provided with an opening 21, leading from the ball-bearing chamber 12 down through the block and out through the bottom of the box 1, whereby any sediment or foreign substances which may perchance pass into the chamber 12 will by the force of gravity pass out through said opening 21 and thus not interfere with or grind out the bearing.

22 represents packing, which may be placed in the chamber 3, for the purpose of holding lubricant for lubricating the bearings.

23 represents trunnions on the box 1 for supporting the same. Where the sheave is used in connection with cable railways, the trunnions may be suitably supported in the conduit, and when it is desired to use the sheave at other points the trunnions may rest in suitable hangers or other supports. (Not shown.)

By the use of my improved bearing I am enabled to very materially reduce the friction in the bearings of the sheave, and as the box is entirely inclosed foreign substances are prevented from entering into the bearings to

any extent, and the various parts are readily removable in case of repairs, &c.

The lower portion of the chamber 3 is made rounding, as shown at 24, (see Fig. III,) to facilitate placing the packing 22 around the axle 10. As the lower portion of the chamber is made round or sloping, the packing can be readily forced down evenly underneath and to the sides of the axle 10, which could not be done were the bottom of the chamber to be made square, as the packing would then pack into the corners and leave the portion of the chamber under the axle with insufficient packing.

I claim as my invention—

1. The combination of the box 1, having partitions 17 18 and chambers 2, 3, and 4, and removable blocks 7 8 in the chamber 2, said blocks having a circular chamber for holding balls to form a bearing for the axle 10, said blocks 7 and 8 and said partitions being beveled outwardly to permit of an upward or downward movement of the axle 10, substantially as and for the purpose described.

2. The combination of the box 1, having partitions 17 18, chambers 2 3 4, and horizontal flanges 1^a, the slide 5, the blocks 7 8, having a circular chamber, and the balls in said chamber for supporting the axle 10, substantially as described, and for the purpose set forth.

3. The combination of the box 1, having partitions 17 18 and chambers 2 3 4, the block 7, the block 8, having opening 14, the plug 16 for closing the opening, and the balls 13, said blocks having a circular chamber for the balls to rest in, substantially as described.

4. The combination of the box 1, having an opening at the bottom, partitions 17 18, and chambers 2 3 4, the block 7, having opening 21, leading to the opening in the box, a block 8, seating on the block 7, and the balls 13, said blocks having a circular chamber for the balls to rest in, substantially as described.

5. The combination of the ball-bearing box 1, having trunnions 23 and partitions 17 18, and the blocks 7 8, having a circular chamber, substantially as described.

CLARENCE A. BURTON.

Witnesses:
JAS. E. KNIGHT,
F. E. MULLETT.