

UNITED STATES PATENT OFFICE.

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BALL-BEARING FOR TRAVERSE-RINGS AND THE LIKE.

946,550.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed May 22, 1909. Serial No. 497,621.

To all whom it may concern:

Be it known that I, FRANK L. LATHROP, a citizen of the United States, residing at Wallingford, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Ball-Bearings for Traverse-Rings and the Like, of which the following is a full, clear, and exact description.

My invention relates to improvements in curtain rings, and particularly to an anti-friction bearing therefor.

The object of the invention is to provide a simple, inexpensive, ball-bearing construction particularly useful in connection with curtain rings.

In the drawings, Figure 1 illustrates a portion of a curtain ring in elevation, and illustrates in section a preferred form of my improved anti-friction bearing as it appears in place on said ring. Fig. 2 illustrates in edge and end elevation a detail of construction. Fig. 3 is a similar view of another detail. Fig. 4 is a similar view of another detail. Fig. 5 illustrates a modification. Fig. 6 illustrates in edge and end elevation one detail of the modification shown in Fig. 5. Fig. 7 illustrates still another modification of a detail. Fig. 8 illustrates a method of assembling a ball-bearing.

I am aware that broadly speaking there is no invention in combining an anti-friction or ball-bearing with a curtain ring, and it should therefore be understood that my invention relates more particularly to the particular ball-bearing construction, although in the preferred form this construction is particularly adapted to a curtain ring and has advantages peculiar thereto.

1 represents a supporting shaft, which may constitute part of a curtain ring.

2 is the hub or inner member of the anti-friction bearing or wheel, said hub 2 being of annular form and having an annular groove at its outer periphery to form part of a ball-race. The inner wall of the hub 2 is preferably provided with an hour-glass passage, the smallest diameter of which approximates the diameter of the part 1.

The outer member of the wheel comprises two telescopic cupped portions 3 and 4.

5 are anti-friction balls. When the parts are assembled, the balls 5 stand in the race-

way around the hub 2 and within the two cupped shells 3—4.

In assembling the parts, the larger shell 4 is placed as shown in Fig. 8, with its open side uppermost. The hub 2 is loosely placed therein. The space between the extreme outer edge of the hub 2 and the inner wall of the part 4 is sufficient to permit the balls 5 to be readily inserted, whereby the same will stand loosely within the cup 4 and around said hub 2. The cupped section 3 with its open side down, is then inserted into the cupped section 4 and forced downwardly. The thickness of the annular wall of the cup 3 serves to contract the space occupied by the balls 5 and forces all the balls around the part 2, into the groove in said part, thus assembling all three parts in final position for use. The cupped sections 3—4 may be secured together in any desired way, for example, by spinning down the extreme edge of the larger section 4, as indicated in Fig. 1. When the parts are thus assembled, the connected parts 3 and 4, constituting the tread or main body of the wheel, will roll smoothly, through the medium of the balls 5, upon the hub 2. The passages through the parts 3 and 4 are preferably considerably larger than the shaft 1, whereby said anti-friction wheel may be tilted to compensate for varying conditions. By this arrangement also, the wheel may be much more readily assembled with the other parts of the curtain ring.

In Figs. 5 and 6, I have shown a modification of the hub 2. Whereas in Fig. 1, said hub is formed of solid material, in Fig. 5 the hub 2^a is formed of sheet metal open at one side and drawn up in such a manner as to provide the ball-race and the inner rounded bearing to rest upon shaft 1.

In Fig. 7, I have shown another modification of the hub of the ball-bearing wheel, the same being formed from sheet metal drawn up in a slightly different manner from that shown in Figs. 5 and 6, said modification being indicated at 2^b. In this figure, the hub 2^b is formed from sheet metal open at the inner edge. In the construction shown in Fig. 7, the hub 2^b can not tilt upon the shaft 1.

Any suitable means may be provided for permitting the ends 6—6 of the curtain ring

sections to be connected with shaft 1, the method of connection being immaterial to this invention.

What I claim is:

5 1. In a curtain ring, two ends connected by a shaft of smaller diameter than said ring ends, an anti-friction device mounted on said shaft and comprising a hub directly engaging said shaft, said hub having an
10 external annular groove forming part of a ball-race, an outer roller member coöperating with said hub and comprising two cupped sections telescopically connected together to form the balance of said ball-race,
15 and a series of balls arranged in said race.

2. In a curtain ring, two ends connected by a shaft of smaller diameter than said ring ends, an anti-friction device mounted on said shaft and comprising a hub directly
20 engaging said shaft, said hub having an external annular groove forming part of a ball-race, an outer roller member coöperating with said hub and comprising two cupped sections telescopically connected together to form the balance of said ball-race,
25 and a series of balls arranged in said race, said hub having an hour-glass passage for said shaft.

3. A curtain ring having a bearing for an
30 anti-friction device, an anti-friction device

mounted on said bearing and comprising a hub directly engaging said bearing, said hub having an external annular groove forming part of a ball race, an outer roller member coöperating with said hub and comprising
35 two cupped sections telescopically connected together to form within and between them the balance of said ball race, said cupped sections overstanding said hub on opposite sides and a series of balls arranged in said
40 race.

4. In a curtain ring, a bearing of reduced diameter, an anti-friction device mounted on said bearing and comprising a hub directly engaging said bearing, said hub hav-
45 ing an external annular groove forming part of a ball race, an outer member coöperating with said hub and comprising two cupped sections, telescopically connected together to form the balance of said ball race and a
50 series of balls arranged in said race, the annular wall of the inner cupped section being spaced apart from the bottom of the groove in said hub, when said parts are concentrically arranged, only sufficient to per-
55 mit said balls to rotate.

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Witnesses:

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