

(No Model.)

G. BOTSFORD & W. HOLTZ.
AXLE BEARING.

No. 476,602.

Patented June 7, 1892.

Fig. 1.

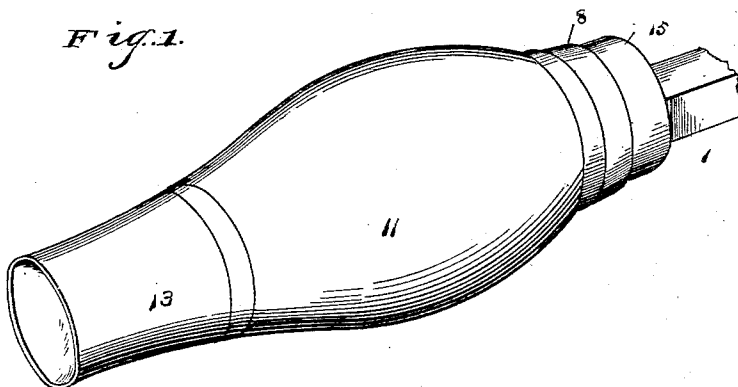


Fig. 2.

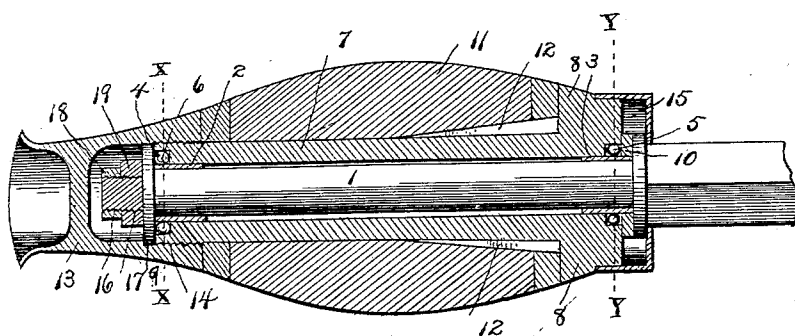


Fig. 3.

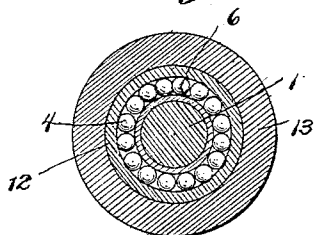
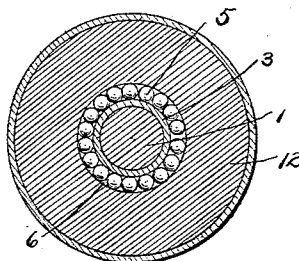


Fig. 4.



Witnesses

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By *their* Attorneys,

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UNITED STATES PATENT OFFICE.

GEORGE BOTSFORD AND WILLIAM HOLTZ, OF NINEVEH, INDIANA.

AXLE-BEARING.

SPECIFICATION forming part of Letters Patent No. 476,602, dated June 7, 1892.

Application filed January 25, 1892. Serial No. 419,169. (No model.)

To all whom it may concern:

Be it known that we, GEORGE BOTSFORD and WILLIAM HOLTZ, citizens of the United States, residing at Nineveh, in the county of Johnson and State of Indiana, have invented a new and useful Ball-Bearing for Axles, of which the following is a specification.

The invention relates to improvements in ball-bearings for vehicle-axles.

The object of the present invention is to simplify and improve the construction of ball-bearing vehicle-axles, to increase the lightness and durability of the parts, and to enable a wheel to be readily taken off for repairing and the like.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended.

In the drawings, Figure 1 is a perspective view of a hub and spindle embodying the invention. Fig. 2 is a longitudinal sectional view. Figs. 3 and 4 are transverse sectional views on lines *xx* and *yy* of Fig. 2.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a spindle provided near its ends with case-hardened bands 2 and 3, on which are arranged balls 4 and 5, the outer ones 4 being located in an annular recess 6 of an axle-box 7, and the inner balls 5 are arranged in an annular casing at the inner end of the axle-box. The balls 4 and 5 are retained in the recess and in the casing by case-hardened washers 9 and 10, and the latter, together with the case-hardened bands 2 and 3, obviate the necessity of case-hardening the entire spindle, thereby cheapening the construction of the latter and making it less liable to break. The annular casing 8 is formed integral with the axle-box and extends over the inner end of a hub 11, which is secured on the axle-box by longitudinal flanges 12 in the usual manner and is retained against longitudinal movement by a cap 13. The cap 13 fits over the outer end of the spindle to protect the parts from dust, and is interiorly threaded and engages exterior threads 14 on

the outer end of the axle-box. The inner end of the axle-box is protected from the dust and dirt by a sand-band 15, which is arranged on the axle and extends over the flange thereof and fits in a circumferential rabbet of the casing 8. The outer end of the spindle is provided with right and left hand threads 16 and 17, and the hub is secured on the spindle by nuts 18 and 19, which screw on the right and left hand threads and prevent the hub from accidentally leaving the spindle.

It will be seen that the ball-bearing for vehicle-axles is simple and comparatively inexpensive in construction, that it is light and durable, that the parts may be readily oiled and are protected from dust, and that a wheel may be conveniently removed and replaced. All the bearing is on the case-hardened bands and washers, and in case they become worn they can easily be removed and new ones put in their places, thus saving the expense of a new spindle. Also, by changing the washers 9 and 10 for thicker or thinner ones the positions of the balls are changed, giving them new bearing-surfaces on the bands 2 and 3.

What we claim is—

The combination of an axle provided with bands arranged at the inner end and the outer end of the spindle, said spindle having its outer end right and left hand threaded, a hub, an axle-box provided at its outer end with a recess and with exterior threads and having at its inner end an annular casing extending over the inner end of the hub, balls arranged in the recess and the casing, washers retaining the balls therein, nuts arranged on the threaded end of the spindle, a cap fitting over the outer end of the spindle and engaging the threads of the axle-box and fitting against the outer end of the hub, and a sand-band fitting over the inner end of the hub, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

GEORGE BOTSFORD.
WILLIAM HOLTZ.

Witnesses:

WM. H. EMICH,
OWEN D. LAND.