

No. 656,240.

Patented Aug. 21, 1900.

H. B. BEEBE.

AXLE.

(Application filed Jan. 11, 1900.)

(No Model.)

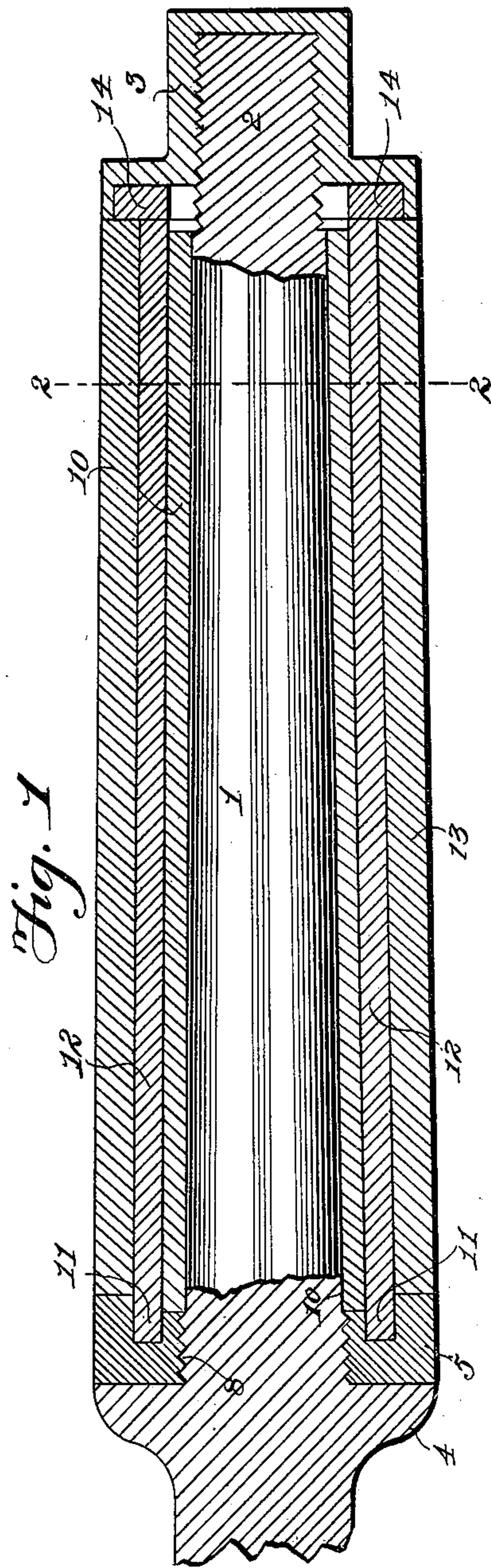


Fig. 1

Fig. 2.

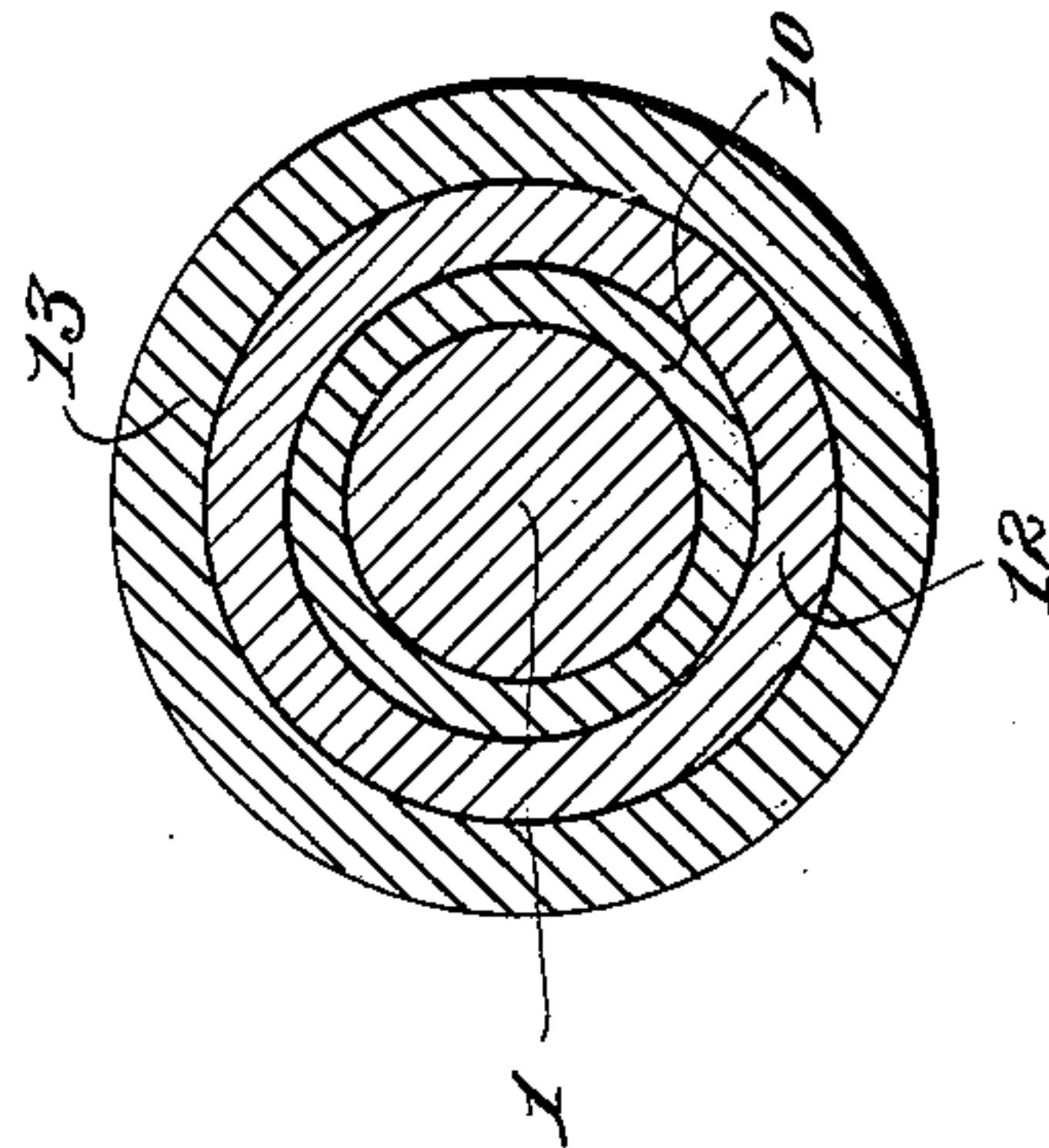
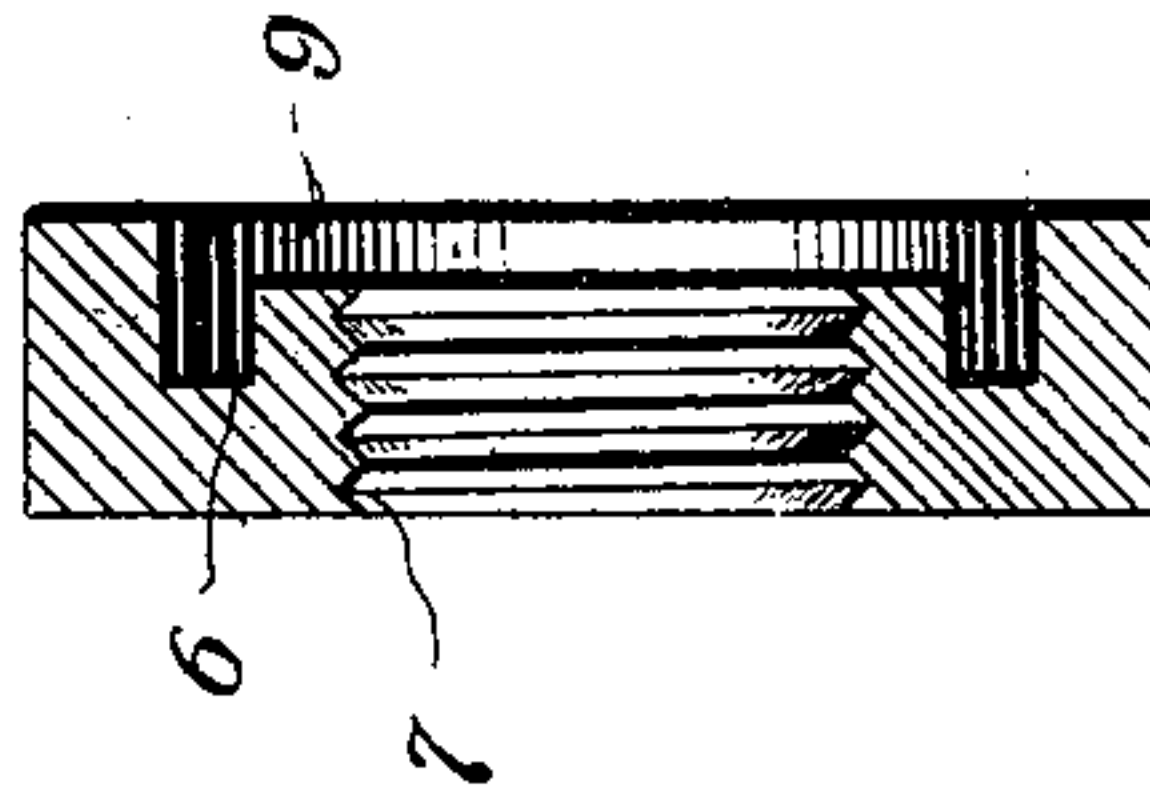


Fig. 3.



Witnesses

*Geo. J. Dondero*

*J. H. Riley*

By *his* Attorneys,

*H. B. Beebe* Inventor

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

HENRY BRACE BEEBE, OF JACKSONVILLE, FLORIDA.

## AXLE.

SPECIFICATION forming part of Letters Patent No. 656,240, dated August 21, 1900.

Application filed January 11, 1900. Serial No. 1,127. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY BRACE BEEBE, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Axle, of which the following is a specification.

The invention relates to improvements in axles.

One object of the present invention is to improve the construction of axles and to enable the wear to be readily taken up and the worn parts removed without discarding either the axle or the axle-box, whereby both parts are rendered practically indestructible.

A further object of the invention is to enable the sleeve or skein of the axle to be readily removed, should the axle become sprung or otherwise necessitate heating, so that the temper of the bearing-surface of the spindle will not be drawn off by such heating of the axle.

Another object of the invention is to enable either or both of the bearing-surfaces of the spindle and the hub to be constructed of anti-friction metal to enable the wheels to run more smoothly.

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 claims hereto appended.

In the drawings, Figure 1 is a longitudinal sectional view of a spindle and axle-box constructed in accordance with this invention. Fig. 2 is a transverse sectional view on line 2 2 of Fig. 1. Fig. 3 is a detail sectional view illustrating the construction of the removable collar.

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

1 designates an axle-spindle designed in practice to be provided with the usual longitudinal groove at its top for holding a lubricant and having a threaded outer end 2 for the reception of an ordinary axle-nut 3 and provided at its inner end with an annular shoulder or enlargement 4, forming a stop for a removable collar 5. The removable collar 5, which is provided at its outer face with an annular groove 6, has interior screw-threads 7 and is arranged on a threaded inner por-

tion 8 of the spindle, said collar being screwed tightly against the annular shoulder or enlargement 4, as clearly illustrated in Fig. 1 of the accompanying drawings. The inner or bottom wall 9 of the annular groove 6 terminates short of the outer face of the collar 5 to provide an overhanging outer portion and to form a recess for the reception of the inner end of an axle-skein 10. The axle-skein 10, which is arranged on the spindle 1, extends from the outer threaded end to the inner threaded portion, and it abuts against the removable collar at the inner wall of the groove, as clearly shown in Fig. 1 of the accompanying drawings, and its outer face is arranged flush with and forms a continuation of the adjacent face of the annular groove 6.

The annular groove 6, which is arranged concentric with the adjacent portion of the spindle, receives the projecting inner end 11 of a bearing-sleeve 12, arranged within an axle-box 13 of the ordinary construction. The outer ends of the axle-box and the sleeve 12 extend slightly beyond the outer end of the axle-skein to permit the wear to be taken up without reducing the spindle. The inner end of the axle-box abuts against the collar 5 at the outer wall of the annular groove, and the inner end of the axle-skein projects beyond the inner end of the axle-box. The sleeve 12, which is interposed between the axle-skein and the axle-box and which is carried by the latter, extends into the annular groove and abuts against the rear wall of the same. By this construction the parts are interlocked and dust and other accumulations are effectually excluded from the bearing.

The axle-nut 3, which is arranged on the outer threaded end of the spindle, is provided at its inner engaging face with an annular recess for the reception of a washer 14 of the ordinary construction.

The axle-skein and the wear-sleeve of the axle-box are readily removable, and when either part becomes worn it may be removed and replaced by a new piece without discarding either the axle or the axle-box, thereby rendering those parts practically indestructible. The sleeve and the skein may be constructed of steel to provide a bearing of that character; but they may be either or both made of antifriction material, if desired.



When it becomes necessary to heat the axle, the skein and the collar are removed and the bearing-surfaces are not affected by such heating and the temper is not withdrawn from the axle.

What is claimed is—

1. A device of the class described comprising a spindle, having an enlargement or shoulder at its inner end, a removable collar arranged on the inner portion of the spindle contiguous to the shoulder or enlargement and provided with an annular groove concentric with the spindle, and an axle-skein arranged on the spindle and abutting against the inner portion of the collar and having its bearing-face arranged flush with and forming a continuation of the adjacent face of the annular groove, substantially as described.

2. A device of the class described comprising a spindle having a shoulder or enlargement at its inner end, a removable collar arranged on the inner end of the spindle, contiguous to the shoulder or collar and provided with an annular groove, an axle-skein arranged on the spindle and fitting against the inner portion of the collar, and a sleeve designed to be arranged within an axle-box and extending beyond the inner end of the skein and fitting within the annular groove of the collar, substantially as described.

3. A device of the class described comprising a spindle a removable collar arranged on the inner end thereof and provided with an annular groove, an axle-skein arranged on the spindle and fitting against the inner portion of the collar, an axle-box fitting against the outer portion of the collar, and a sleeve arranged within the axle-box and projecting beyond the same and fitting in the groove of the collar, substantially as described.

4. A device of the class described comprising a spindle having a threaded inner portion, a removable interiorly-threaded collar arranged on the inner threaded portion of the spindle and provided at its outer bearing-face with an annular groove, the wall at the inner side or bottom of the groove terminating short of that at the outer side thereof, an axle-skein arranged on the spindle and fitting against the removable collar and having its outer face flush with the adjacent face of the annular groove, an axle-box fitting against the outer portion of the collar, and a sleeve arranged within the axle-box and projecting beyond the inner end thereof and fitting in the annular groove, substantially as described.

5. A device of the class described comprising an axle having a spindle provided with inner and outer threaded portions, said spindle being provided at its inner end with an enlargement or shoulder, an interiorly-threaded collar arranged on the inner threaded portion of the spindle and provided with an annular groove, an axle-skein arranged on the spindle and fitting against the collar at the inner side of the groove, an axle-box fitting against the outer portion of the collar, a sleeve arranged within the axle-box and projecting beyond the inner end of the same and extending into the annular groove of the collar, and an axle-nut arranged on the outer end of the spindle, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY BRACE BEEBE.

Witnesses:

T. G. HUTCHINSON,  
A. M. LENING.