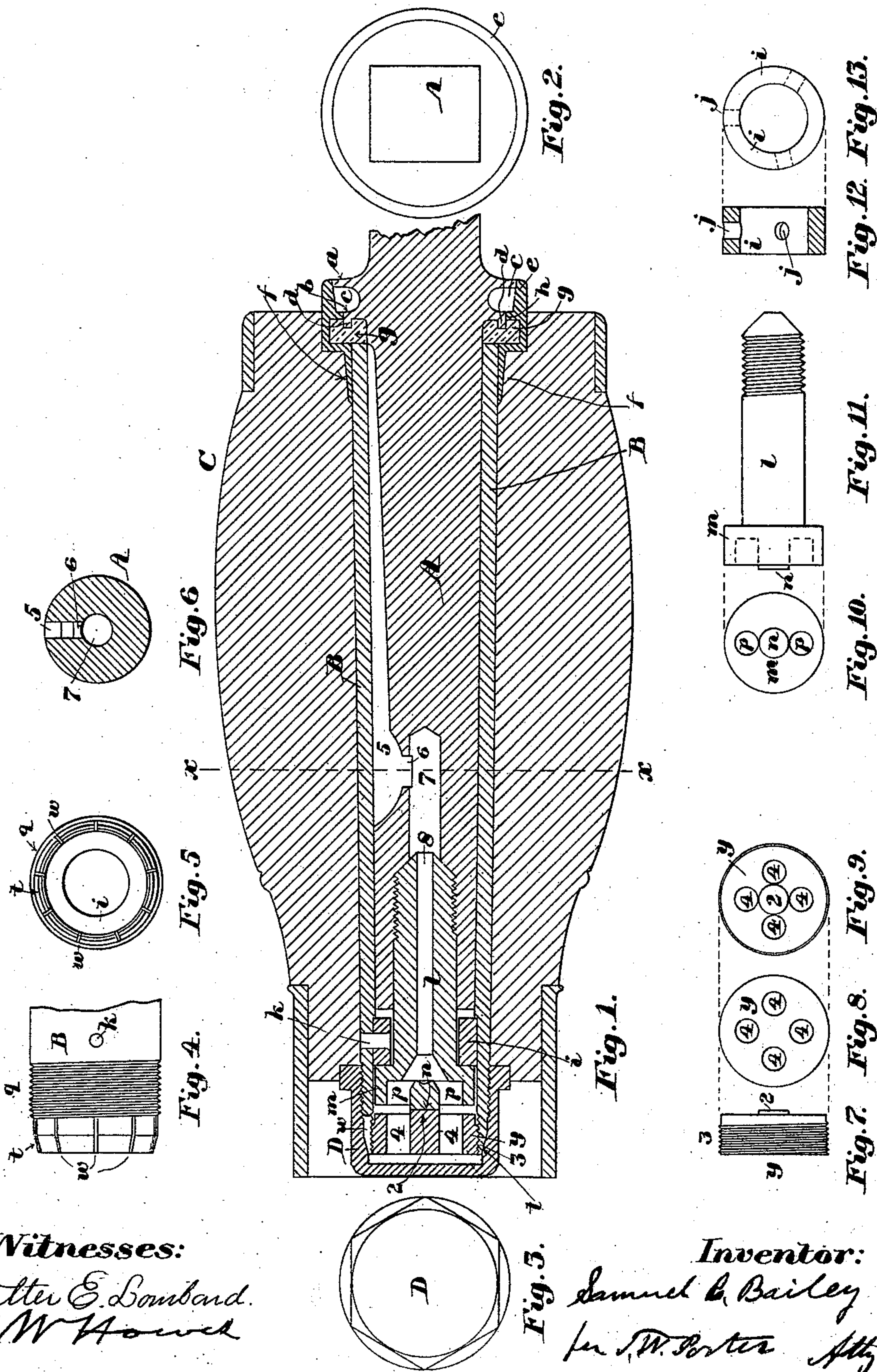


(No Model.)

S. R. BAILEY.
CARRIAGE AXLE.

No. 543,368.

Patented July 23, 1895.



Witnesses:
Walter E. Lombard.
L. W. Howell

Inventor:
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UNITED STATES PATENT OFFICE.

SAMUEL R. BAILEY, OF AMESBURY, MASSACHUSETTS.

CARRIAGE-AXLE.

SPECIFICATION forming part of Letters Patent No. 543,368, dated July 23, 1895.

Application filed December 8, 1894. Serial No. 531,265. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. BAILEY, of Amesbury, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Carriage-Axles, which will, in connection with the accompanying drawings, be hereinafter fully described, and specifically defined in the appended claims.

In said drawings, Figure 1 is a longitudinal section of the axle, its box, and rabbeted parts. Fig. 2 is an end elevation of the axle taken at the right of Fig. 1. Fig. 3 is an elevation of the cap of the box as viewed from the left in Fig. 1. Fig. 4 is a side elevation of the front part of the axle-box. Fig. 5 is an end elevation of the box shown in Fig. 4. Fig. 6 is a transverse section of the axle taken as on line *a*, Fig. 1. Figs. 7 to 13 are views of parts to be described.

The object of my invention is to produce a light-running axle that at the inner end is practically water and dirt tight, that will continuously circulate the lubricant that is supplied to it occasionally, and that is provided with special means for holding the wheel and its box in position on the axle, as will be next herein described, and then pointed out in the claims.

Referring again to said drawings, A represents the axle-arm.

B is the box, and C the hub, the latter being shown that the invention and the application thereof to the wheel may the more clearly appear.

At the inner part of arm A is the divided collar *a* and *b*, with the groove *c* formed between said parts *a* and *b*. Said part *a* extends outward a greater distance than does part *b*, and to inclose said groove I provide a concentric flange or shield *e*, which on its inner face is formed with a recess to receive the ring-packing *g*, and has also an inwardly-projecting lip *h* that abuts against part *b* of the dividing-collar. Said flange *e* can be formed as part of box B, but I prefer to form it with a sleeve *f* to inclose the box, as shown in Fig. 1. Said part *b* of the collar may also be formed with a concentric flange *d*, that enters the side of packing *g*, as shown. It is thus seen that any water entering between collar *a* and shield *e* will, if it follows the interior face of

said shield, be arrested by lip *h* extending inward from part *e*, and when water or dirt that may have entered groove *c* arrives at the bottom of said groove it slides by gravity outward on part *e* and escapes therefrom.

Near the front end of box B, I secure therein the hardened steel ring *i*, (shown in end elevation in Fig. 13 and in section in Fig. 12,) which may, if preferred, be formed with holes *j*, so as to be secured in the box by rivets *k*; but I prefer to make said ring a close-driving fit and force it into the box.

I form the outer portion of box C as shown in Fig. 4, which is a side elevation, and in Fig. 5, which is an end elevation, with thread *q*, a bevel *t* at the end, and with slits *w* extending along the box a proper distance. Said box is also at its outer end threaded interiorly and has fitted therein the plug *y*, threaded, as at 3, Fig. 7, (which is a side elevation of it, while Fig. 8 is a left-hand end elevation, and Fig. 9 a right-hand end elevation,) said plug being formed with the projecting center 2 there shown. I also form the axle with a longitudinal groove 5, that extends from near the inner end of arm A to the hole 6, that connects said groove with the axial passage 7, which communicates with axial passage 8 in the plug-nut 1, that is screw-threaded in axle A, and which has a head *m*, from the face of which projects the pin *n*, with hole *p* on each side, which holes enter into central passage 8, as shown in Fig. 1. When the several parts are assembled for use, the head of nut 1, acting against collar *i*, holds the wheel upon the axle, and the bearing of pin 2 of plug *y* against pin *n* of nut 1 resists the inward movement of the wheel. The cap D, fitting closely to bevel *t* of box B, serves to bind the slit end of the box closely upon plug *y*, then in the box.

It will be apparent that the entire inward and outward inclination of the wheel (due to imperfections of the road) is resisted at the outer part of the axle and box, as already explained, to wit: the outward inclination by ring *i* bearing against the nut 1, and the inward inclination by pin 2 bearing against pin *n*. It will also be apparent that the lubricant between the axle and box will be gradually carried to the top of the axle and will be de-

posited in groove 5, where it will pass to the front of the axle, to again be distributed between the axle and box to continue such circulation. Ring *i* can be formed either separately or integral with box B, as desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a carriage axle the two part solid collar formed of parts *a* and *b*, having groove *c* between them, the part *a* having greater diameter than part *b*, and flange *e* formed internally with an outward flare, and formed with lip *h* to abut against part *b* of the solid collar, substantially as specified.

2. In a carriage axle, the nut 1 threaded in the axle and formed with axial hole 8 the projection *n* and the passages *p* formed at the sides of projection *n* and in communication with said central passage 8, substantially as specified.

3. In a carriage axle and in combination with nut 1 formed with projection *n*, the plug *y* threaded in the outer part of box B and formed with projection 2 that abuts against said projection *n*, and formed with holes 4,

outside said projection 2, substantially as specified.

4. In a carriage axle, and in combination the plug *y* threaded in the outer end of box B, the said box formed with thread *q*, the slits *w* at its outer end a beveled corner as *t* and a threaded cap D formed to impinge upon the beveled part of said box to compress it upon plug *y*, substantially as specified.

5. In combination with nut 1 formed with an axial passage 8 that communicates with opening in cap D, the axle A formed with a central passage 7, in rear of nut 1, a top groove 5 and hole 6 connecting said groove with passage 7, all substantially as specified.

6. In a carriage axle the combination of nut 1 formed with head *m* and threaded in the axle, the ring *i* secured in box B and arranged to abut against nut 1, and plug *y* also secured in box B to abut against the outer face of head *m* substantially as specified.

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Witnesses:

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