

J. W. BEAL.

Improvement in Attaching Wheels to Axles.

No. 121,270.

Patented Nov. 28, 1871.

Fig. 1

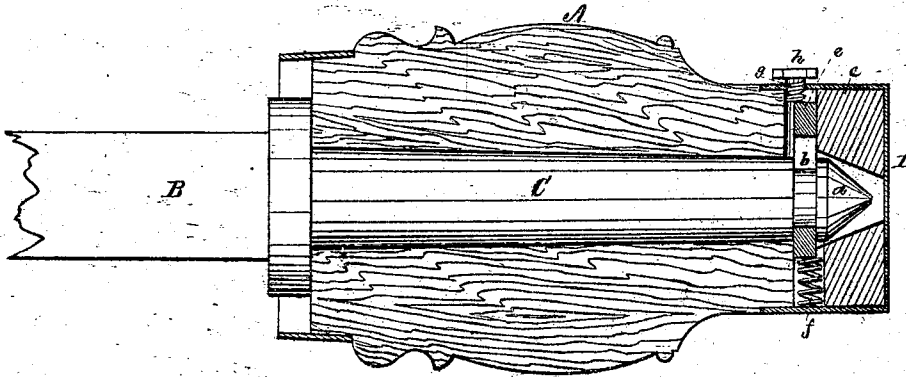
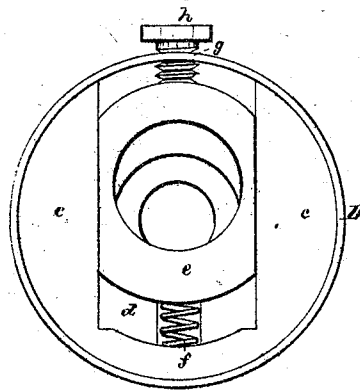


Fig. 2



Witnesses.

Saml. Lane
H. C. Hale

J. W. Beal.

by his attorney.

H. P. Hale

UNITED STATES PATENT OFFICE.

JOHN WILLIAMS BEAL, OF SOUTH SCITUATE, MASSACHUSETTS.

IMPROVEMENT IN ATTACHING WHEELS TO AXLES.

Specification forming part of Letters Patent No. 121,270, dated November 28, 1871.

To all whom it may concern:

Be it known that I, JOHN WILLIAMS BEAL, of South Scituate, in the county of Plymouth and State of Massachusetts, have invented a new and useful Improvement in Wheel-Carriages; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a central and longitudinal section of the journal and hub of a wheel as constructed and connected in accordance with my invention, and Fig. 2 an inner end view of the metallic cap, (affixed to the outer end of the hub,) showing the sliding lock-plate or spring-retainer, to be hereinafter described.

My invention relates to an improved method of attaching wheels to their axles, whereby they can be either readily applied thereto or removed therefrom, as circumstances may require; and my invention consists in the peculiar construction of the outer end of the journal or axle, viz.: with a conical head and an annular groove to operate with a sliding retainer or locking-plate disposed within the metallic cap or cylindrical casing affixed to the outer end of the hub.

In the said drawing, A denotes the hub of a wheel; B, a part of an axle; and C, the journal thereof. The outer end of the said journal is formed tapering, or with a conical head, *a*. *b* is an annular groove, made transversely in the said journal and near the outer extremity thereof. D is a hollow metallic cap, which is affixed by means of screws to the outer end of the hub, so as to be removable therefrom whenever it may be desirable. Within the said cap D a cylindrical washer or bearing-plate, C, is disposed, the outer end of such plate, when the cap is affixed to the hub, bearing against the outer end of the hub. The said washer or plate has not only a hole made through it to receive the end of the journal, but also a rectangular recess or chamber, *d*, to receive a sliding lock-plate or retainer, *e*, having the form as shown in side view in Fig. 2, and a thickness corresponding with the width of the groove *b* of the journal, with which it operates. *f* is a coiled spring, which serves to force and maintain the said slider or lock-plate in its groove; or, instead of being made separate, the said cap D and the

washer or bearing-plate may be cast or formed in one piece, the said bearing surface and inner face of the slider being in the same plane, and so as to abut against the end of the hub. Furthermore, the said cap has a hole, *g*, bored transversely through it; and directly over the end of the slider, which is opposite to that against which the spring *f* is located, such hole being closed by a screw-plug, *h*, which performs the double function of closing the hole and adjusting the tension of the spring or the friction of the locking-plate upon the journal. The object of the said hole *f* is to enable a pin or other suitable device to be inserted therein, and, by impact against such end of the slider, bring the axis of the latter into correspondence with the axis of the journal so as to enable the wheel to be withdrawn from the axle or journal.

From the above it will be evident that in applying the wheel to the axle all that is requisite is simply to insert the end of the axle within the box of the wheel and push the latter inward until the inner end of the hub abuts against the shoulder of the axle, the conical head or end of the journal striking against the annular edge of the slider bringing the latter into such position as to enable the said head to readily pass through the same, when the catch-plate, coming into juxtaposition with the groove *b*, is forced therein and thus automatically locks the wheel to the axle; while in removing the wheel I simply have to unscrew the plug *h* and insert a pin or suitable device within such opening and push backward the slider until its annular opening shall coincide with the conformation of the axle, when the wheel can be readily removed.

Having described my invention, what I claim is as follows:

My improved wheel and axle connection, the same consisting of the sliding catch-plate *e* provided with a spring, *f*, in combination with the conical head *a* and annular groove *b*, the whole being arranged and applied together and to the journal and hub of a wheel so as to operate in manner and for the purpose set forth.

J. WILLIAMS BEAL.

Witnesses:

F. T. HALE,
E. C. WATERMAN.

(31)