

UNITED STATES PATENT OFFICE.

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WHEEL-SECURING DEVICE.

SPECIFICATION forming part of Letters Patent No. 760,169, dated May 17, 1904.

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To all whom it may concern:

Be it known that I, ESSEX S. ABBOTT, of Stoneham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Wheel-Securing Devices, of which the following is a specification.

This invention relates to wheel-securing devices formed as caps or collars detachably secured to the outer end of axle-arms as substitutes for the ordinary nuts used to retain wheels in place on the axle-arms.

The invention has for its object to provide a simple and effective wheel-retaining device adapted to be quickly and conveniently applied to and removed from an axle-arm and free from liability to be accidentally disengaged.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a wheel-securing device embodying my invention. Fig. 2 represents a section on line 2 2 of Fig. 1. Fig. 3 represents a perspective view of a portion of the axle-arm adapted to be engaged with the wheel-securing device shown in Figs. 1 and 2. Fig. 4 represents a sectional view of the portion of the axle-arm shown in Fig. 3. Fig. 5 represents a sectional view showing the wheel-securing device applied to the axle-arm. Fig. 6 represents an inner side view of the rotary end piece removed from the body of the wheel-securing device. Fig. 7 represents another side elevation of the wheel-securing device.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents an axle-arm having at its outer end a squared extension or shank *a'*, in two opposite sides of which are formed recesses *a² a³*.

b represents a cap or collar having an internal socket *b'* adapted to receive and closely fit the squared extension *a'* of the axle-arm.

c c represent levers pivoted at *c' c'* to the cap *b*, each lever having a longer arm and a shorter arm. The longer arms of the levers *c* are provided with inwardly-projecting studs *c²*.

d represents an end piece of preferably cir-

cular shape, connected by a screw or pivot *d'* with the outer end of the cap *b*. Said end piece is provided with two eccentric or cam-shaped slots *d² d³*, into which the shorter arms of the levers *c* project, said arms being preferably curved inwardly, as shown in Fig. 2. The relative arrangement of the parts described is such that when the end piece *d* is turned to one position the studs *c²* project into the socket or cavity *b'* and are in position to enter the recesses *a²* in the axle-arm, as shown in full lines in Fig. 2, the cap being thus secured to the axle-arm. When the end piece *d* is turned to another position, the cam-shaped slots swing the shorter arms of the levers inwardly and the longer arms outwardly, thus withdrawing the studs *c²* from the recesses in the axle-arm, as shown by dotted lines in Fig. 2. The end piece *d* constitutes not only a means for operating the levers *c*, as above described, but also a cover for the outer end of the cap *b* and levers *c*. The said end piece is adapted to be held by friction in any position in which it may be left, there being no liability of sufficient accidental movement of the end piece to cause the withdrawal of the stud *c²* from the orifices in the axle-arm. At the same time when the end piece has been adjusted to withdraw the studs from the cavity of the cap *b* it remains in said position, thus holding the studs out of the way, when the cap is again applied to the axle-arm.

In Fig. 1 I have shown a spring *g* affixed to one side of the cap *b*, the free end of said spring projecting into a notch *g'*, Fig. 6, formed in the end piece *d*. The notch is so formed that when the end piece is forcibly turned one side of the notch will force the spring outwardly. The spring and notch are intended as a safeguard against any possible tendency of the end piece *d* to accidentally rotate, although, as above indicated, there is no actual need of considering this liability. The periphery of the end piece is preferably milled to enable it to be conveniently grasped and turned on the pivot *d'*.

I claim—

1. A wheel-supporting cap or collar having a socket or cavity to receive a shank on the outer portion of an axle-arm, levers pivoted to said cap and having inwardly-projecting

studs on their longer arms, and an end piece pivoted to the outer end of the cap and provided with eccentric slots engaging the shorter arms of the levers, said slots being formed to hold the levers either in the socket or withdrawn therefrom.

2. A wheel-supporting cap or collar having a socket or cavity to receive a shank on the outer portion of an axle-arm, levers pivoted to said cap and having inwardly-projecting studs on their longer arms, an end piece pivoted to the outer end of the cap and provided with eccentric slots engaging the shorter arms of the levers, and a spring-detent arranged to prevent accidental movement of the end piece.

3. The combination of an axle-arm having a polygonal extension or shank provided with orifices, a cap having a socket or cavity formed to receive and fit said shank, levers pivoted to said cap and having inwardly-projecting studs formed to enter said orifices, and an end piece pivoted to the outer end of the cap and provided with eccentric slots engaging the shorter arms of the levers.

In testimony whereof I have affixed my signature in presence of two witnesses.

ESSEX S. ABBOTT.

Witnesses:

C. F. BROWN,
E. BATCHELDER.