(No Model.)

A. JOSEPHS & H. LUERS.

WHEEL RETAINER FOR VEHICLES.

No. 559,896. Patented May 12, 1896.

Fig. 1

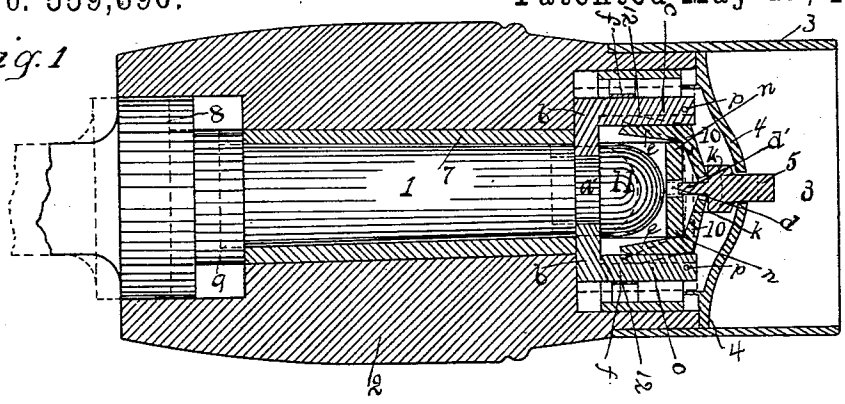


Fig. 2

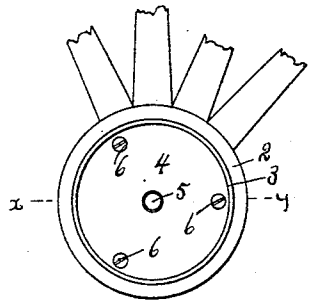


Fig. 3

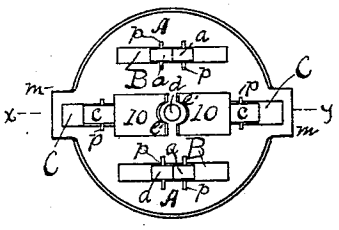


Fig. 4

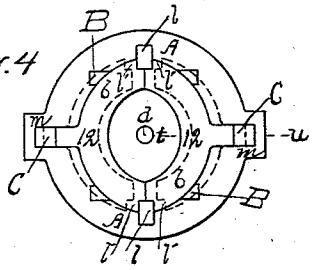


Fig. 6

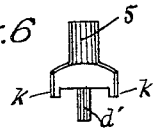


Fig. 7

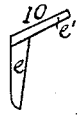


Fig. 5

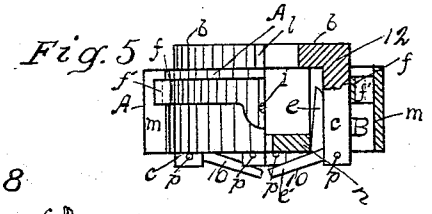
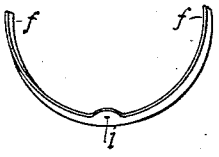


Fig. 8



Witnesses:
A. Lee
E. F. Merriam

Inventors,
Adolf Josephs
Hyman Luers
per D. B. Replogle
atty.

ANDREW B. GRAHAM, PHOTO-LITHO. WASHINGTON, D.C.

UNITED STATES PATENT OFFICE.

ADOLF JOSEPHS AND HYMAN LUERS, OF SCRANTON, PENNSYLVANIA.

WHEEL-RETAINER FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 559,896, dated May 12, 1896.

Application filed January 18, 1896. Serial No. 575,969. (No model.)

To all whom it may concern:

Be it known that we, ADOLF JOSEPHS and HYMAN LUERS, citizens of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Wheel-Retainers for Vehicles; and we declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention has for its object to afford a device for retaining the wheel to the axle of a vehicle, which obviates the use of a nut or other tedious handling of parts.

The device consists in the combination of a suitably-formed axle and an automatically-acting pair of jaws adapted to engage with the outer end of the axle and firmly hold the wheel in place without any further action on the part of the user than to simply shove the wheel to its place on the axle, and being adapted to be released by the user simply pressing a knob, and other objects which appear in the following specification and are embodied in the claims.

Referring to the drawings accompanying this specification, Figure 1 shows the spindle or end of an axle as required to be fashioned when our device is used, and a view in cross-section, on the line *x y* of Figs. 2 and 3, of the principal working parts of our retaining device. Fig. 2 is an outer end view of a wheel-hub in which our device is used. Fig. 3 shows the parts of our device as they would appear if the cap in Fig. 2 and also the knob were removed. Fig. 4 is an under side view of the frame or block in which the jaws are fitted, being an opposite or under side view of Fig. 3. Fig. 5 is a side view, partly in cross-section on the line *t u* of Fig. 4, of the block or frame as shown in Figs. 3 and 4. Fig. 6 is a knob or press-button used with the device. Fig. 7 shows one of the pair of small L-shaped levers which communicate the pressure on the knob to the jaws. Fig. 8 shows the flat spring used to hold the jaws in a closed position.

The spindle 1 is turned with shoulders 8 and 9. Shoulder 8 is adapted to make the journals of the wheel more dust-proof, and the shoulder 9 is adapted to slide on the bushing 7 of the hub. Near the end of the spindle is the neck *a'*, adapted to receive the jaws *b*, the head 11 beyond the neck *a'* being hemispherical and serving as a hold by which the jaws *b* retain the wheel to the axle.

4 is a metallic cap having a round hole in its center through which the button 5 projects. Its purpose is to hold the button 5 in place and to present a neat outward appearance and also to make the hub dust-proof. It is attached to the hub 2 by means of the screws 6. The hub-band 3 fits snugly around the cap 4 and is attached to the hub 2 in the usual manner. The block or body into which the operable parts of our device are set is designated A, and is a flat cylinder in form, having the extensions *m m*. This block or body is preferably made of brass or other metal and is provided with slots B B, running parallel to the axis of the cylinder and parallel to each other at opposite sides of the center, and also the slots C C, running parallel to the aforesaid and toward the center from the extensions *m m*, which serve to allow them greater length. These slots have all a similar purpose—namely, to permit the arms or extensions *a* and *c* of the members 12 and 12 to slide backward and forward in the operation of opening and closing the jaws. It must be understood that the jaws *b*, with their extensions *a* and *c*, which slide in the slots B and C, are integrally made with and constitute the members 12 of the device, which are held from slipping out of the block A or getting into cramped positions by means of the retaining-pins *p p*, &c., as shown in Figs. 2 and 3, which are arranged so as to allow the parts 12 12 to slide loosely from and toward the center of the block A. The jaws are held in the closed position by the pressure of the ends *f f* of the U-shaped flat spring, Fig. 8, which is attached to the block A by a rivet at *i*. The ends of this spring press against the outer sides of the arms *b b* of the members 12 12 and are adapted to slide outward or inward in the open spaces *f' f'* through the extensions *m m*, as shown by the dotted lines in Figs. 4 and 5. The L-shaped members 10

10 are adapted to be used as levers, and are so placed that the angles *n n* act as fulcrums or pivots on which said levers turn during the operation of spreading the jaws or releasing the wheel from the axle. The member 5 is simply constituted with a cylindrical projection *d'*, adapted to slide in the hole *d* of the block A, and with shoulders *k k*, adapted to press upon the ends *e'* of the levers or members 10 10, so that when pressure is applied to the button or portion extending outwardly through the plate 4 the lower ends *e e* of the levers 10 10 are caused to press outwardly on the arms *b b* of the members 12 12, thus causing the jaws to separate when it is desired to remove the wheel from the axle. The block A is provided with projections *l l*, Fig. 4, and the jaws *b b* have the notches *l' l'* cut into them for the purpose of engaging with the projections *l l*, so as to hold them more steady when in use.

The operation of our device is as follows: When the wheel is to be placed upon the axle, the jaws of the retaining device being in the normal or closed position, the wheel is simply shoved on the axle in the usual way until the sides of the hemispherical head 11 strike the inner edges of the jaws *b*. The operation of pressing on the wheel being continued, the jaws *b* are automatically pressed apart by their inner edges sliding over the curved surface of the head 11 until they reach the neck *a'*, where the tension of the flat spring, Fig. 8, causes the jaws to take the closed position, and thus secure the wheel in place, as shown by the full lines in Fig. 1. The operation of removing the wheel is as easily understood. By applying pressure to the press-button 5 it is caused to slide inwardly and its shoulders *k k* tilting downward the ends *e'* of the L-shaped levers 10, thus throwing ends *e e* of said levers against the inner sides of the arms *c c* of the members 12, and presses them outward or apart until the jaws *b b* are sufficiently separated to allow the head 11 to pass between them, as shown by dotted lines in Fig. 1.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an automatic retaining device for vehicles the combination of the block A provided with slots B and C with the members 12 12 having arms *a* and *c* extending through said block and adapted to slide in said slots in the operation of opening and closing the jaws of the device and the said jaws being adapted to engage with the spindle or axle of a vehicle substantially as shown and described.

2. In an automatic retaining device for wheels of vehicles the combination of a pair of jaws adapted to clasp into a groove or neck on the spindle of the axle, the said jaws being secured to their proper positions by means of the arms *a* and *c*, at right angles with the grasping parts and extending through slots B and C in a block A and adapted to slide in the said slots in the operation of opening or closing the jaws, the flat spring *f f* adapted to hold the jaws in the closed position, the L-shaped levers 10, 10 and the knob 5 adapted to be used in releasing the wheel substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

ADOLF JOSEPHS.
HYMAN LUERS.

Witnesses:
JAS. A. RIGGALL,
C. W. ROESLER.