(No Model.)

T. C. HARGRAVE.

HUB ATTACHING DEVICE.

No. 457,815. Patented Aug. 18, 1891.

Fig. 1.

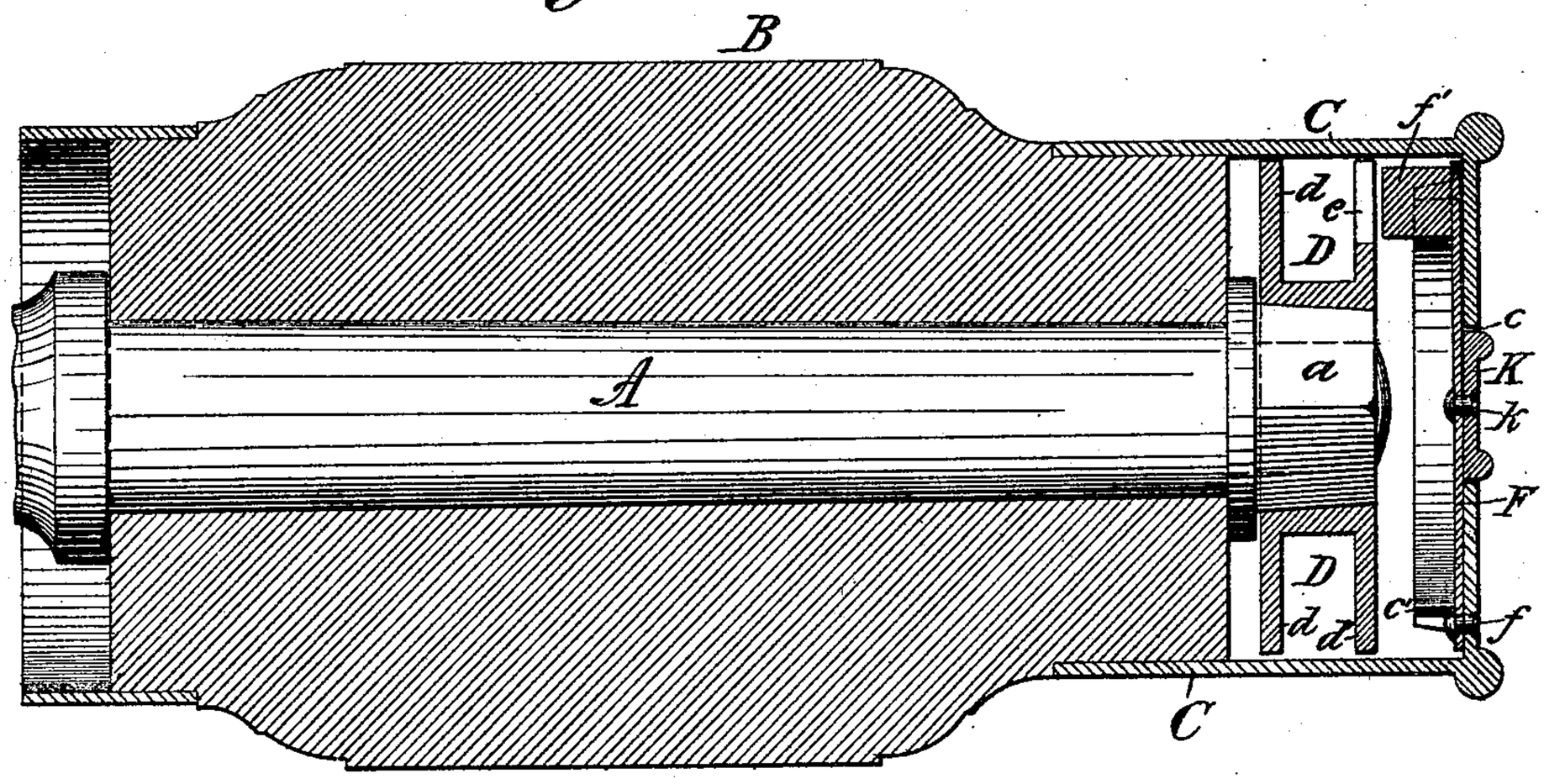
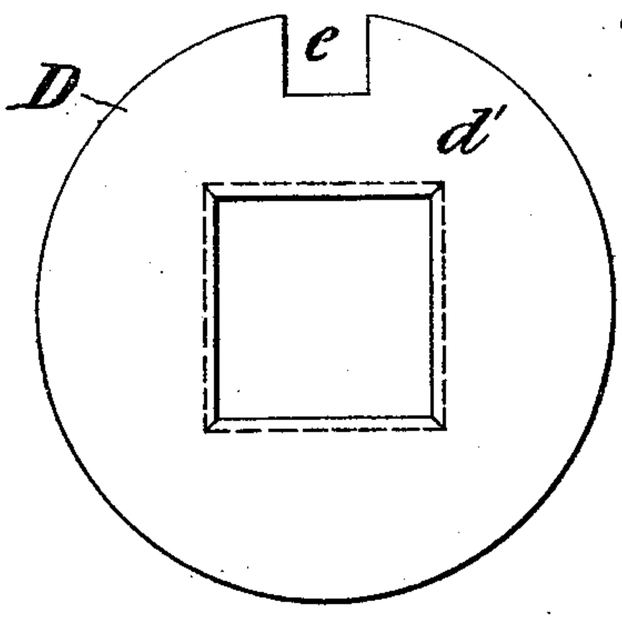


Fig. 5

Fig. 2.



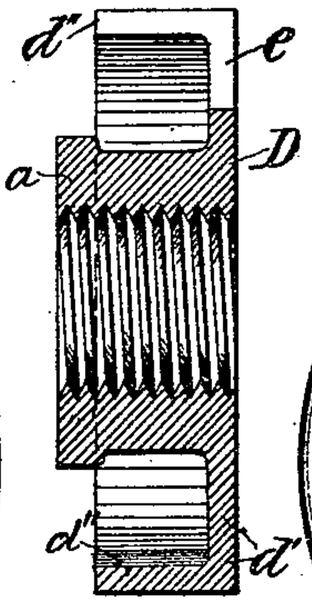


Fig. 3.

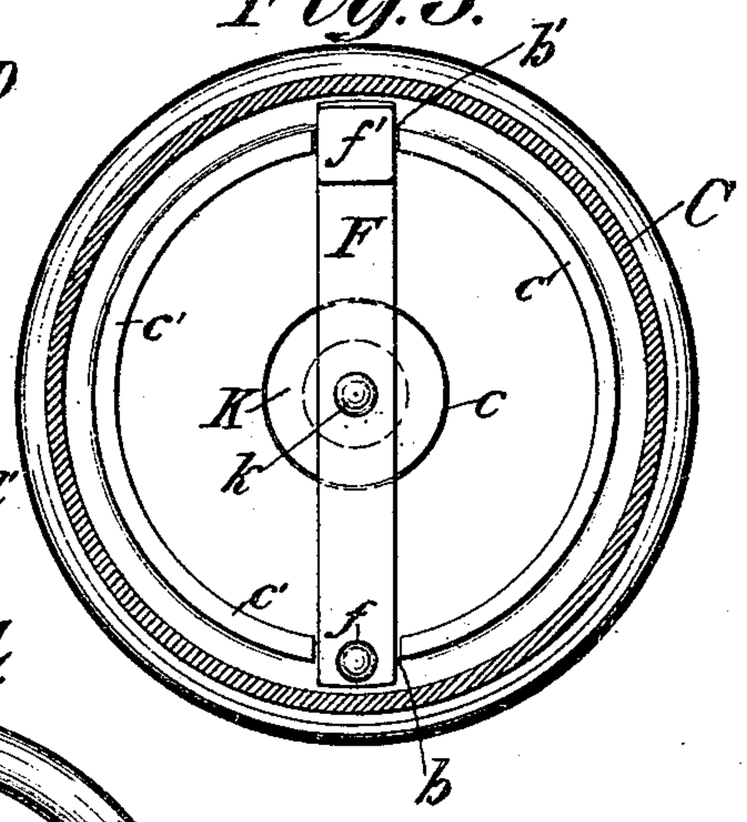
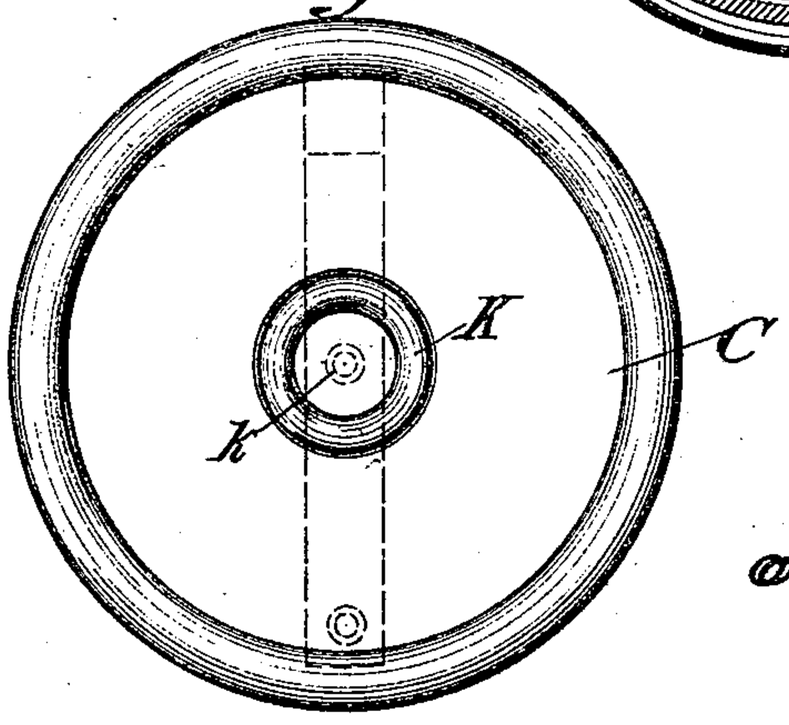


Fig. 4.



Witnesses
M. Georgii
Chas. E. Jones.

Inventor
Thomas C. Hargrave
By E. B. Clark
Attorney

UNITED STATES PATENT OFFICE.

THOMAS C. HARGRAVE, OF MINNEAPOLIS, MINNESOTA.

HUB-ATTACHING DEVICE.

SPECIFICATION forming part of Letters Patent No. 457,815, dated August 18, 1891.

Application filed January 7, 1891. Serial No. 376,954. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. HARGRAVE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Hubs for Carriages and other Vehicles; and I do hereby 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.

This invention relates to a closed hub-cap and an improved device for screwing up and unscrewing the retaining-nut on the screw-threaded end of the axle for securing to or removing a carriage or other vehicle-wheel from such axle.

The object of my invention is to provide for excluding dirt and dust from the axle of a vehicle-wheel by means of a closed cap and at the same time make a neat ornamental finish for the hub.

Another object is to provide simple and effective means within the cap for removing the wheel of a carriage without the use of the usual hand-wrench; also to avoid soiling the hands when applying or removing the dirty nut, as in the old way; also to provide for protecting the clothing from dirt and grease usually present on the old form of unprotected hub and axle nut.

The matter constituting my invention will be defined in the claims.

I will now particularly describe my invention by reference to the accompanying drawings, in which—

Figure 1 represents a longitudinal section of a hub and my improved cap and devices for operating the axle-nut to remove or replace the wheel on the axle. Fig. 2 represents a face view of my hollow flanged nut, which may be applied to the usual axle-nut. Fig. 3 represents a transverse section of the cap looking toward its outer end and showing my locking devices for engaging with the axle-nut or the hollow flanged nut on the axle-nut. Fig. 4 represents an outer face view of the end of the hub-cap. Fig. 5 represents a sectional view of a flanged axle-nut.

The carriage-hub B is applied to the axle A in the usual manner and is provided at its outer end with a closed cap C, which is secured to the hub in the same manner as the usual band. The cap C is provided with a central opening *c* in its end plate, and the inner face of such end plate is provided with two inwardly-projecting curved flanges *c'*. (Shown in Figs. 1 and 3.) These flanges do not meet at their adjacent ends, but are so constructed that two openings or notches *b b'* are formed on diametrically-opposite sides of the hub-cap, as shown in Figs. 1 and 3. Simple lugs having spaces or notches between them will answer the same purpose as the flanges. Within the notch *b* or adjacent thereto there is riveted at *f* one end of the flat spring F, which is provided at its opposite end with a dog or stop *f'*, which rests within the notch *b'*. At or near the middle portion of the spring there is riveted or otherwise secured at *k* the stud or button K, which is made to fit nearly within the opening *c* and projects outward a little, as shown. Both the end plate of the cap and button may be provided with ornamental beads or ribs, as shown, or any desired form of ornamentation.

The usual screw-threaded nut *a* may be applied to the screw-threaded end of the axle, or such nut may be modified in construction, as hereinafter described. According to the construction shown in Figs. 1 and 2, a hollow nut D, provided with circular flanges *d d'*, is fitted over the nut *a*, and the outer flange *d'* is provided with a notch *e* for receiving the dog *f'* of the spring F. The circular flanges or projections *d d'* on the hollow nut D serve to keep the nut D from tilting and getting out of place when the wheel is removed from the axle.

Instead of the hollow nut being made as shown in Figs. 1 and 2, and where new work is being made, a flange or projection may be made directly upon the nut *a* and be provided with a notch, such as *e*, to be engaged by the dog *f* directly instead of through the medium of the hollow nut. In other words, the nut *a* will be provided directly, and as an integral portion thereof, with one or more flanges, such as *d d'*. This last-mentioned construction is within the scope of my invention, and I wish it to be understood that my invention is not limited to a separate flanged hollow nut.

When making new nuts for use with my spring-dog attached to the cap, I may form them with a radial flange *d'*, having connected

at right angles to its outer edge a circumferential band or flange d'', as shown in Fig. 5, for better supporting the nut in proper position in the cap when removed from the axle. The flange d' is provided with a notch e, as before explained, and such notch may extend through the circumferential flange d'', as shown, though this is not essential. In place of the circumferential band d'', the radial flange d' may have lugs cast to its outer edge, so as to project at an angle to its face and to increase its bearing-surface in the cap. When an extra hollow nut is used, it may be keyed to the usual axle-nut.

For the purpose of applying my improvements to old hubs the circumferential shell or wall of cap C may be made shorter than the one shown in Fig. 1 and secured to the usual hub-band by means of screws, or in any well-known manner.

The operation of my device is very simple and can now be understood, as follows: When it is desired to remove the wheel, the axle is jacked up in the usual manner, the stud or button k is pressed inward, while the wheel is slowly turned until the dog f' is pressed into the notch e and thereby engages the flange of the nut, and the continued turning of the wheel in a reverse direction quickly unscrews the nut a, so that the wheel can be taken off. In order to replace the wheel, it is placed upon the axle and the dog f caused to engage the flange of the nut, as before, and the wheel is then turned in an opposite direction until the nut a is fully screwed onto the axle, when the stud or button k is released and the dog f by the action of the spring is drawn out of the notch e, so that the nut is left free and acts in its usual manner to retain the hub upon the axle. The construction and operation are very simple, and the device can be readily manipulated by any unskilled person.

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

1. The combination, with a hub, of the axle-nut having a connected flange or projection within the hub band or cap, and adjustable means connected with such band or cap adapted to engage with said flange or projection of the nut, substantially as described.

2. In a vehicle-hub, the axle-nut provided with a flange or projection having a notch, in combination with the hub-cap, and a spring-dog adapted to engage with the notch in said flange or projection, substantially as described.

3. In a vehicle-hub, the cap provided with a spring-dog secured to its inner face and set within a suitable notch or recess, in combination with a flanged nut provided with a notch for engagement of the dog, substantially as described.

4. The hub-cap having a spring-dog secured to its inner face, said dog being held within a notch or between lugs projecting from the end plate of the cap, and said cap having an opening communicating with the spring-dog, in combination with the flanged axle-nut provided with a notch for receiving the dog, substantially as described.

5. The cap having suitable notched projections or lugs upon the inner face of its end plate, and a flat spring secured to the end plate and having at its free end a dog arranged in the notch of said projection, in combination with a flanged nut provided with a notch for engagement of said dog, substantially as described.

6. In combination with the usual axle-nut, the hollow nut provided with a flange having a notch, a hub-cap, and a movable spring-dog connected thereto, substantially as described.

7. The hub-cap having an opening in its end plate, in combination with a spring-dog secured to the inner face of such end plate, a stud or button connected with such spring-dog and arranged in the opening of the end plate, and a flanged nut provided with means for engagement of the dog, substantially as described.

8. The hub-cap having a spring-dog secured to its inner face, in combination with an axle-nut provided with a notched radial flange having a circumferential band or flange, substantially as described.

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

THOMAS C. HARGRAVE.

Witnesses:

JOHN W. COBB,

EDSON S. GAYLORD.