W. N. HALL.

Carriage Axle.

No. 105,801. Patented July 26, 1870

Fig. 1.

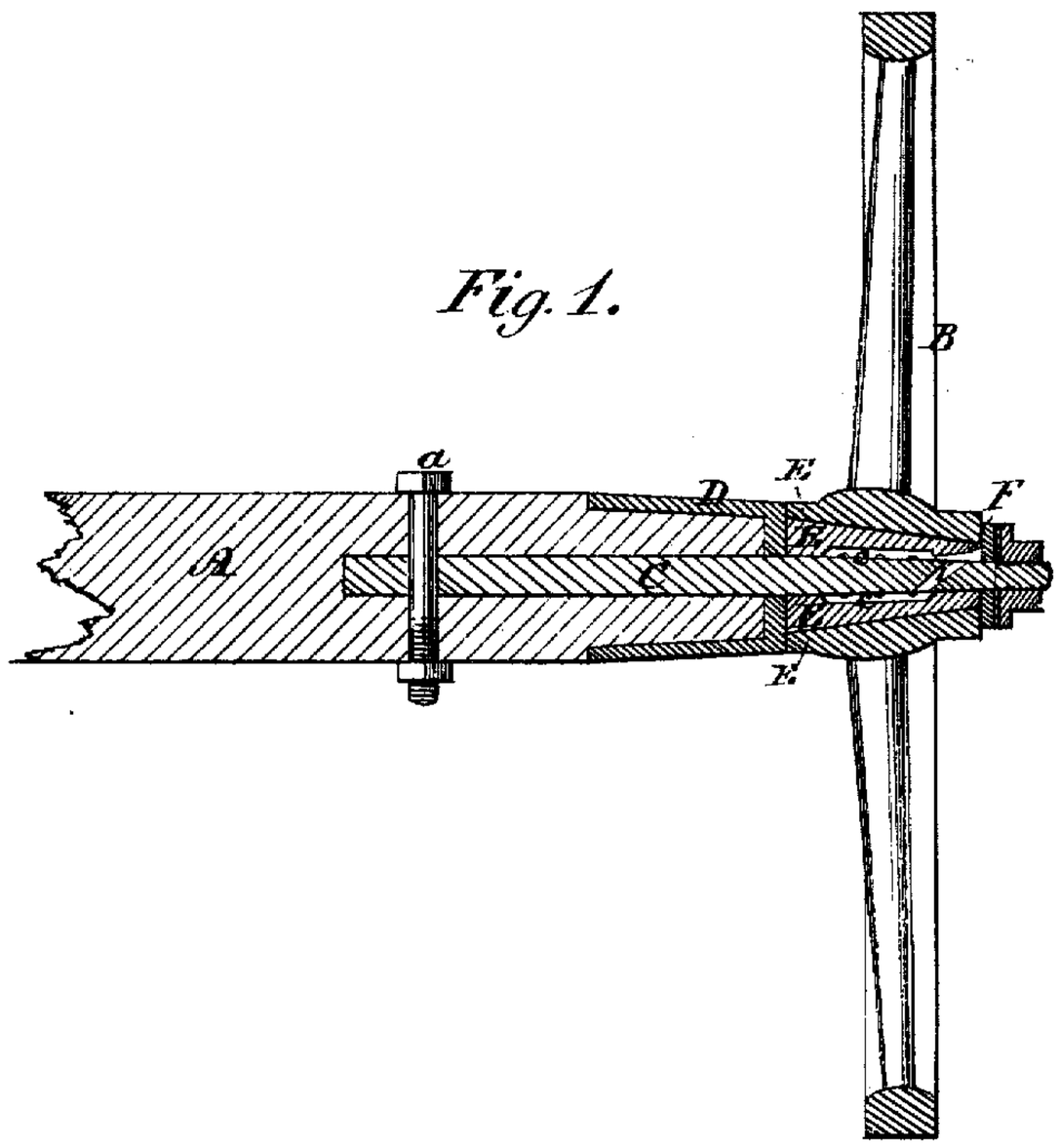


Fig. 2.

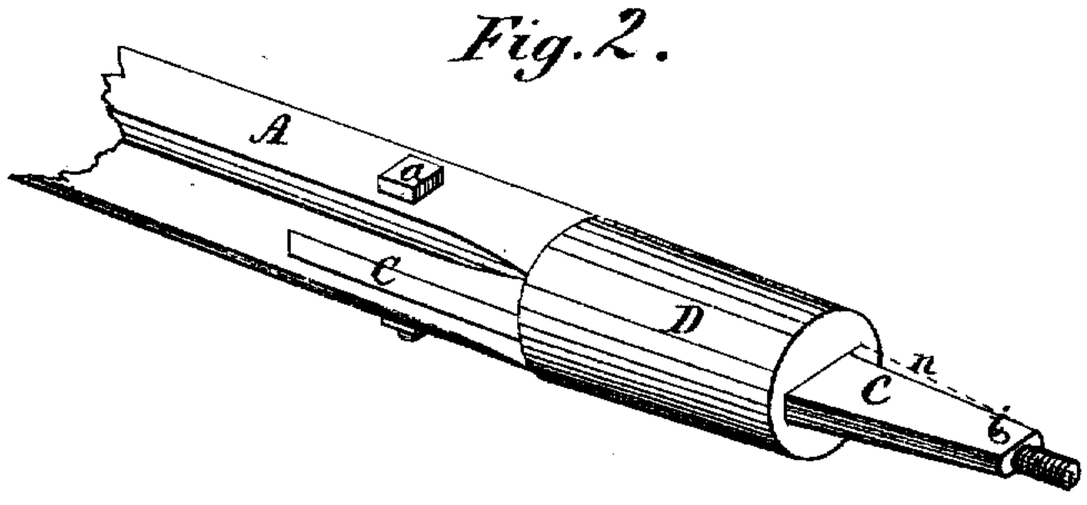


Fig. 3.

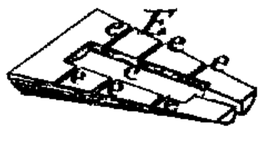
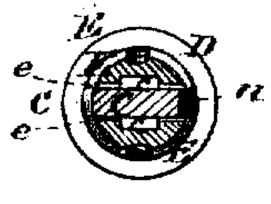


Fig. 4.



Witnesses

A. B. Stiefler

"

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By his Attorneys,

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United States Patent Office.

WILLIAM N. HALL, OF SPRINGFIELD, TEXAS.

Letters Patent No. 105,801, *dated July* 26, 1870.

IMPROVEMENT IN CARRIAGE-AXLES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM N. HALL, of Springfield, in the county of Limestone and State of Texas, have invented a new and useful Improvement in Axles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing of the same, which makes part of this specification, and in which—

Figure 1 represents a vertical section of a portion of an axle, with a wheel secured thereon.

Figure 2 represents a perspective view of one end of an axle, the upper and lower bearing sections thereof being removed from the flat supporting-plate.

Figure 3 represents a view, in perspective, of the flat grooved side of one of the bearing-sections; and

Figure 4 a transverse section of the bearing of the axle.

My invention relates to axles; and

It consists in constructing the bearings thereof in sections of either tapering or cylindrical form, the central section being flat, extended into, and secured to the axle, while the outer or bearing-sections are fitted thereon so that they may be removed and replaced, when necessary, and furnish a lubricating-chamber on either side of the flat supporting-plate, from which the oil is supplied to the bearing-sections at their junction with said supporting-plate, thus obtaining interior lubricating-channels, without boring the axle, and drawing the vehicle from flat plates in a line coincident with the axis of the axle, instead of from the lower part of the circumference of the bearing, and thus gaining greater leverage, and a saving of power.

In the accompanying drawing—

A represents the axle, and

B the wheel.

The supporting-plate C of the bearing is inserted within the end of the axle, which is divided centrally for that purpose, and firmly secured by screw-bolts *a*, and its projecting flat end is fitted into the opening of the hub, which, in the instance shown, is tapering, so that the supporting-plate, at its junction with the axle, is much wider than at its outer end, which gives it the same degree of strength as if it were cylindrical.

At this point the supporting-plate C is secured to the end of the axle by means of a ferrule, D, through an oblong opening, in which said supporting-plate projects, so as to be locked therewith, and to the end of the axle.

The bearing-sections E are flat on one side, and correspond in form to the supporting-plate, and convex on their outer sides, the radius of which corresponds with the width of the supporting-plate, and completes the circle of the bearing.

The bearing-sections abut against the end of the locking-ferrule, and are fitted to the supporting-plate without fastening, being held always in place by the hub.

Their flat sides are provided with cavities, *c*, to receive and hold a supply of lubricating-material between them and the flat sides of the supporting-plate, and the cavities communicate with the circumference of the bearing by transverse grooves, *e*, through which the oil works out at the joints of the sections.

The two cavities communicate with each other by an oblique opening, *i*, in the flat supporting-plate, through which the oil circulates between the sections.

The outer end of the upper section is notched, so as to lead to the mouth of the oblique opening, and afford facility for supplying the cavities with oil, by simply removing the screw-nut, which secures the wheel.

The convex sides of the bearing-sections are channeled lengthwise to reduce friction, and to hold oil.

The width of the supporting-plate is a little less than that of the bearing-sections throughout their length, in order to leave a space, *n*, between its rear side and the interior of the hub, for the purpose of reducing the friction, and forming an oil-channel. The extent of surface thus relieved of friction is equal to the thickness of the supporting-plate. .

The wheel may be secured to the axle in any suitable manner.

In a cylindrical bearing, the supporting-plate may be tapered so as to be thicker at its connection with the axle, and the bearing-sections made thinner at their inner than at their outer ends.

The axle may also be made in one piece with its supporting-plate, instead of separate, as described.

The interior oil-chambers communicating with each other through the flat supporting-plate, tend to lessen the liability of the bearing becoming unduly heated.

The washer F is fitted upon the flat end of the supporting-plate C, so that it cannot turn, and a rubber washer may be intervened between it and the outer screw-nut, and thus prevent the latter from unscrewing.

Having described my invention,

I claim—

1. An axle, having its bearings made in three sections, the central one being flat, and constituting the supporting-plate for the two bearing sections, substantially as herein described.

2. The flat supporting-plate C for the bearings,

inserted into and secured to the axle by means of bolts *a*, and the locking-ferrule D, as herein described.

3. The bearing-sections E, made with cavities, *c*, on their flat sides, so as to be inclosed by the corresponding sides of the supporting-plate C, through an opening, *i*, in which they communicate with each other, and provided with cross-grooves *e*, through which the oil passes to the circumference of the bearing, as herein shown and described.

4. The combination of the supporting-plate C, the bearing sections E, the locking-ferrule D, and the inclosed lubricating cavities *c*, constructed and arranged substantially as herein shown and described.

In testimony whereof I have hereunto signed my name.

WILLIAM N. HALL.

Witnesses:
T. H. UPPERMAN,
A. E. H. JOHNSON.