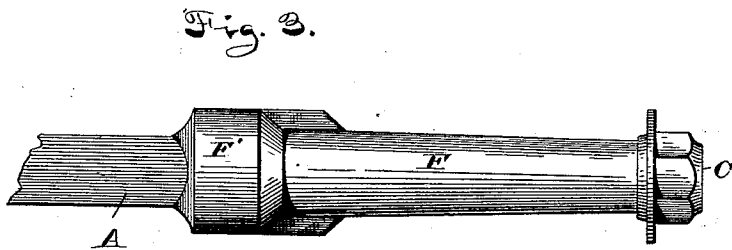
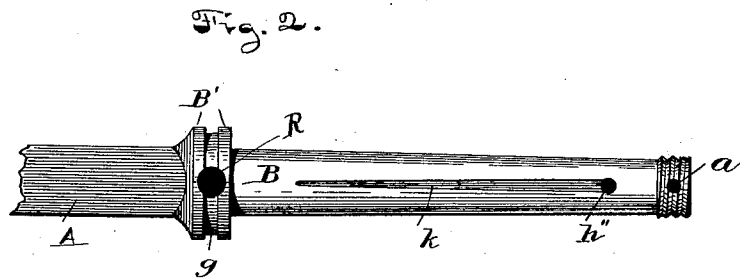
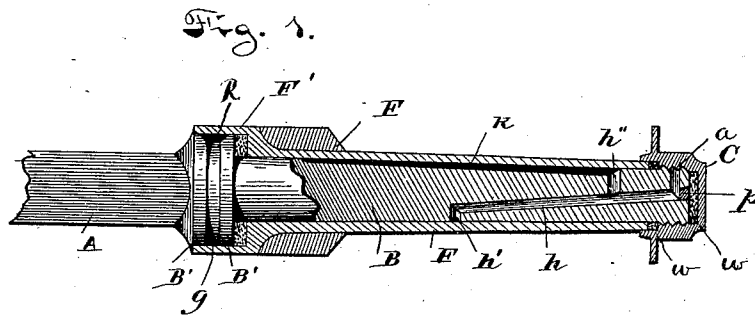


(No Model.)

W. JONES.  
VEHICLE AXLE.

No. 428,107.

Patented May 20, 1890.



Witnesses

34. D. Neely.

C. P. Bailey.

Inventor

Willis Jones

by J. R. Drake.  
his Attorney

# UNITED STATES PATENT OFFICE.

WILLIS JONES, OF BUFFALO, NEW YORK.

## VEHICLE-AXLE.

SPECIFICATION forming part of Letters Patent No. 428,107, dated May 20, 1890.

Application filed January 3, 1890. Serial No. 335,768. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIS JONES, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Vehicle-Axles; and I do 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 of reference marked thereon, which form a part of this specification.

This invention relates to the self-lubrication of axles; and the invention consists in the simple arrangement of oil grooves and openings by which the lubrication is automatic and continuous and allows fresh oil to be put in by merely unscrewing the nut on the outer end of the axle without having to remove the wheel, all as hereinafter fully explained.

In the drawings, Figure 1 is a longitudinal elevation, partly in section, showing the oil openings and channels; Fig. 2, a top plan of spindle and part of axle, the hub-box removed; Fig. 3, an elevation of whole, excepting a wheel-hub.

A represents the axle; B, the axle-bearing or spindle; B', the double bearing for the collar F' of hub-box F, which incloses it. (See Fig. 1.)

g is the sand-groove in the bearing B', and is provided with a pocket R in the top. (See Fig. 2.)

h is an oil-channel, made by drilling into the spindle B from the center of the outer end and at a slant downward therefrom and continued to about the center of the spindle, ending in a vertical outlet h' into the hub-box F. The outer end of the channel h is then plugged up at p for a short distance and a vertical oil-opening a drilled in the top of the spindle in the center, where the screw-threads are and which leads into channel h. This allows the oiling of the axle by merely unscrewing the cap C from the spindle without removing the wheel and supplies the axle with oil for a much longer time than by the

ordinary methods. In addition a long oil-groove k is made in the top of the spindle, commencing a short distance from the inner end of spindle and running forward at a slant and deepening to a vertical hole h'', which leads therefrom into the first channel h. The hole h'' is but a short distance from the screw-threads on the end of the spindle, as shown in Figs. 1 and 2. The spindle B is not cut down at the outer end for the screw-threads, as is usual, but the threads are made on the full circumference of the spindle, giving greater strength at that point, and the cap-nut C screws against the end of the hub-box F, having only an interposed washer u and another washer w against the end of the spindle. (See Fig. 1.) This simple arrangement of the downwardly-slanting channel h into the hub-box F, and the top channel K slanting into the same channel and connected therewith by means of the vertical oil-opening h'', gives a continuous automatic flow of the oil after it has been poured into the opening a. The revolving of the hub-box (and wheel) carries the oil from channel h and its outlet h' around till it reaches the top groove K, where the most of it deposits and flows downward to the channel h by means of the connecting vertical oil-hole h'', the surplus being constantly worked back into the channel h to be returned with every revolution of the wheel. The double bearing at B' B' makes the axle especially strong at that point. The boxes are the same as for ordinary axles.

I am aware that a short oil-groove h is old; but such are supplied with oil through the outer end with an oil-repository in the nut or cap and which works out there. In mine this end is plugged and no oil can leak out. My oil-opening a in the top of the screw-thread obviates that trouble, and oil is poured therein without removing the wheel, as before stated. A longitudinal channel in the top of the spindle is also old, but not one slanting toward the end and leading into the channel h.

I claim—

1. In a vehicle-axle, the top oil-channel K, made at a gradual slant from rear to front and terminating in a vertical oil-passage h'',

leading to an oil-channel  $h h'$  in the axle B, adapted to giving an automatic flow of oil as the hub revolves, substantially as specified.

2. In a vehicle-axle, the combination of the  
5 oil-channel  $h h'$ , plug  $p$ , oil-receiving passage  $a$  in top of end of spindle, the upper channel K, with connecting oil-passage  $h''$ , leading to channel  $h$ , axle-cap C, and hub-box F F', all

arranged and operating conjointly, substantially as and for the purpose specified. 10

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

WILLIS JONES.

Witnesses:

J. R. DRAKE,  
WATSON E. WING.