

(No Model.)

O. S. EBERT.
VEHICLE AXLE.

No. 569,183.

Patented Oct. 13, 1896.

Fig. 1.

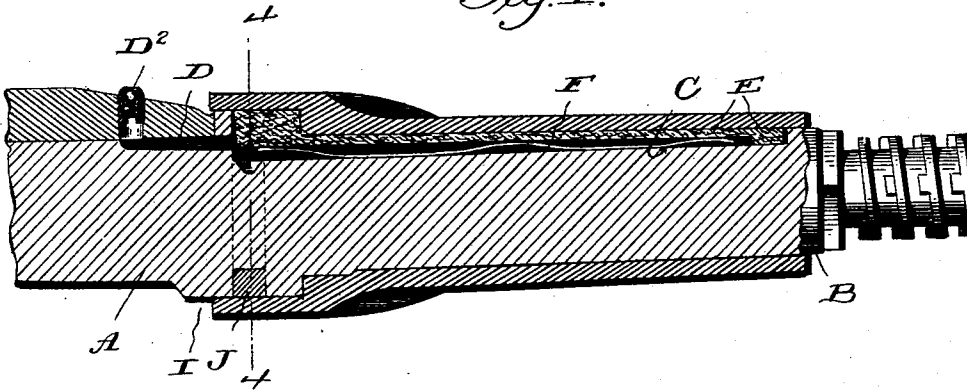


Fig. 2.

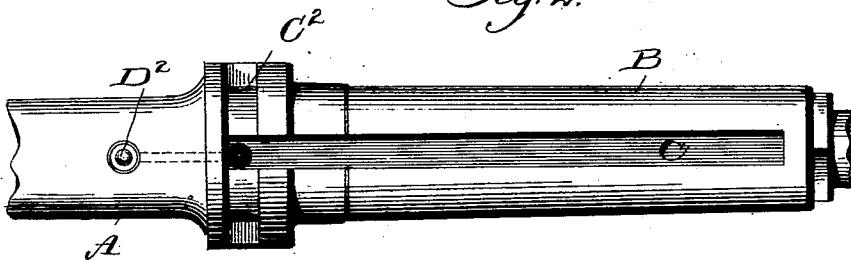


Fig. 3.

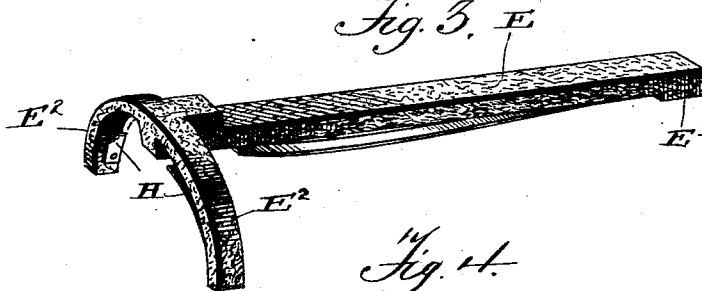
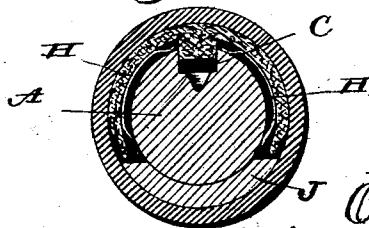


Fig. 4.



Witnesses:
L. C. Gilles.
A. L. Hough.

Inventor:
Octavius S. Ebert
by Franklin A. Hough
Atty.

UNITED STATES PATENT OFFICE.

OCTAVIUS SUTTEN EBERT, OF GALESBURG, ILLINOIS.

VEHICLE-AXLE.

SPECIFICATION forming part of Letters Patent No. 569,183, dated October 13, 1896.

Application filed January 24, 1896. Serial No. 576,703. (No model.)

To all whom it may concern:

Be it known that I, OCTAVIUS SUTTEN EBERT, a citizen of the United States, residing at Galesburg, in the county of Knox and State of Illinois, 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 certain new and useful improvements in the means employed in supplying oil to journal-bearings generally through the intervention of a conductor of felt or other substance adapted to the purpose, which conductor is interposed between a duct or oil-reservoir upon the shaft or vehicle-axle skein and the box, sleeve, or journal rotating thereon, the said oil-conductor being held by the action of suitably-arranged springs into contact with the journal or sleeve, thus insuring a constant and uniform supply of lubricant.

The present invention, in which I have illustrated my invention in its applied form, relates particularly to vehicle-axles, and more particularly to the form of the axle whereby the tendency of the wheel under certain conditions to work inward and form grooves at the inner end of the boxing will be avoided.

The invention relates, further, to the peculiar form and position of the oil duct or chamber, the "oil-conductor" in its relation to the said oil-duct, and the means employed in supplying oil to the oil-duct.

A further object of the invention resides in the provision, in connection with the axle-spindle and the oil-duct formed therein, of the oil-conductor, which is of a form adapting it to uniformly supply the oil to the boxing throughout the entire length of the spindle, said conductor at the same time serving effectually as a dust-guard to prevent the dust or other foreign substances from entering the bearing.

To these ends and to such others as the invention may pertain the same consists in the peculiar construction and in the novel combi-

nation, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a central vertical section through a vehicle-axle skein and boxing provided with my improvements. Fig. 2 is a top plan view of the same with the box or sleeve removed. Fig. 3 is a detail view in perspective of the oil-conductor removed from its seat, and Fig. 4 is a vertical transverse section upon the line 4 4 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates a vehicle-axle which is provided with a suitable spindle B, which spindle is provided upon its upper face with a longitudinal recess or chamber C, which chamber or recess extends substantially the entire length of the spindle and at its inner end communicates with the lateral channel C², which is formed in the enlarged inner end of the spindle, as shown, said lateral channel being either in a portion, or the entire distance around the periphery of the said enlarged end of the spindle. In the accompanying drawings I have shown this peripheral channel as extending substantially two-thirds of the distance around the spindle, though it will be at once evident that the length of the channel may be varied without departing from the spirit of my invention.

Communicating with the inner end of the oil duct or channel C, at the point at which said channel intersects the peripheral channel C², is a channel D, leading from a suitable filling-aperture D², which is provided in the upper face of the axle. This filling-aperture is provided with any suitable stopper or other closing device which serves to prevent dust or other foreign matter from entering the oil-duct, as will be readily understood.

E is what I term an "oil-conductor." It is made of felt or of any porous substance adapted to the purpose, and is designed to be seated within the oil duct or chamber and to serve to convey the oil from the said duct to the inner face of the boxing of the wheel by capillary attraction, the same principle

being involved as in the ordinary lamp-wick, which serves to convey the oil from the body of a lamp to the burner. This oil-conductor E has a main or body portion of a size and form adapting it to be seated within the oil-duct C, and at its inner end is provided with lateral curved arms or extensions E² E², which are designed to be seated within the lateral peripheral channel C². The end of the oil-conductor opposite to that which is thus provided with lateral arms E² is provided upon its under face with a lug or shoulder E³, which lug, resting upon the bottom of the oil-duct, raises the body portion of the said conductor a sufficient distance to permit of the insertion of a spring F, which is secured to the under face of the conductor and serves to normally hold the same into contact with the boxing. The lug E³ serves also to convey the oil to the body portion of strip. The under faces of the lateral arms E² of the conductor are also provided with suitable springs H, which springs in like manner serve to press the said arms outward.

In order to prevent the boxing from being grooved by the shoulder at the inner end of the spindle, as is so common with the use of axles of ordinary construction, I extend the plane of the lower face of the spindle inwardly for a considerable distance beyond the inner end of the boxing, as shown at I.

While, as I have before stated, the groove C² may, if preferred, be extended the entire distance around the inner end of the spindle at its base or inner end, I have found that the construction which I have illustrated in the accompanying drawings is for many reasons by far the preferable construction.

The filling J (seen in Fig. 1) serves to close the lower half of the channel beneath the ends of the portions E² of the pad, which portions fill the other half of said channel.

Having thus described the details of my invention, a few words will suffice to render its operation clear to those skilled in the art to which the invention pertains.

It will be seen that when the oil-conductor has been seated in the oil-duct the body portion of the conductor will be normally forced outward by the tension of the spring upon its under surface, and it will also be seen that the lateral curved arms E² will in like manner be forced outward by their respective springs. The oil which is taken up by the conductor will, by capillary attraction,

be uniformly conveyed to the boxing, thus insuring at all times a perfect lubricating of the parts. When the oil supply becomes exhausted, it will be seen that it may be readily renewed without necessitating the removal of the wheel.

Attention is particularly called to the curved arms E² and to the double office which is performed by them—viz., that of conducting the oil and also of preventing dust or other foreign substances from entering the bearing at the inner end of the hub of the wheel. It will be at once seen that, being forced outward by the action of the springs, the said arms will serve to effectually prevent dust from entering the bearing at this point.

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

1. The combination with the axle-spindle having a longitudinal oil-chamber, of the absorbent pad extended lengthwise of the chamber and having portions extending from one end thereof to embrace the axle, and springs secured to the pad and to the said end portions thereof to force the same outward, substantially as specified.

2. The combination with the axle-spindle having a longitudinal oil-chamber and an annular channel, of a pad of absorbent material having a portion extending lengthwise of said chamber and portions embracing the spindle and arranged in said channel, the said pad being formed with oppositely-disposed shoulders at opposite ends, substantially as described.

3. The combination with the axle-spindle having a longitudinal oil-chamber and an annular channel with an oil-duct communicating therewith, of an absorbent oil-conveyer arranged in said chamber parallel with the spindle and having at one end integral curved portions seated in said annular channel, a spring extending lengthwise of and secured to the inner side of the conveyer at one end, and independent springs secured to the inner faces of the said curved portions, substantially as and for the purpose specified.

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

OCTAVIUS SUTTEN EBERT.

Witnesses:

DANIEL E. ALLEN,
J. R. TRISSAL.