

(No Model.)

J. W. MARSHALL.

SELF OILING AXLE.

No. 333,532.

Patented Jan. 5, 1886.

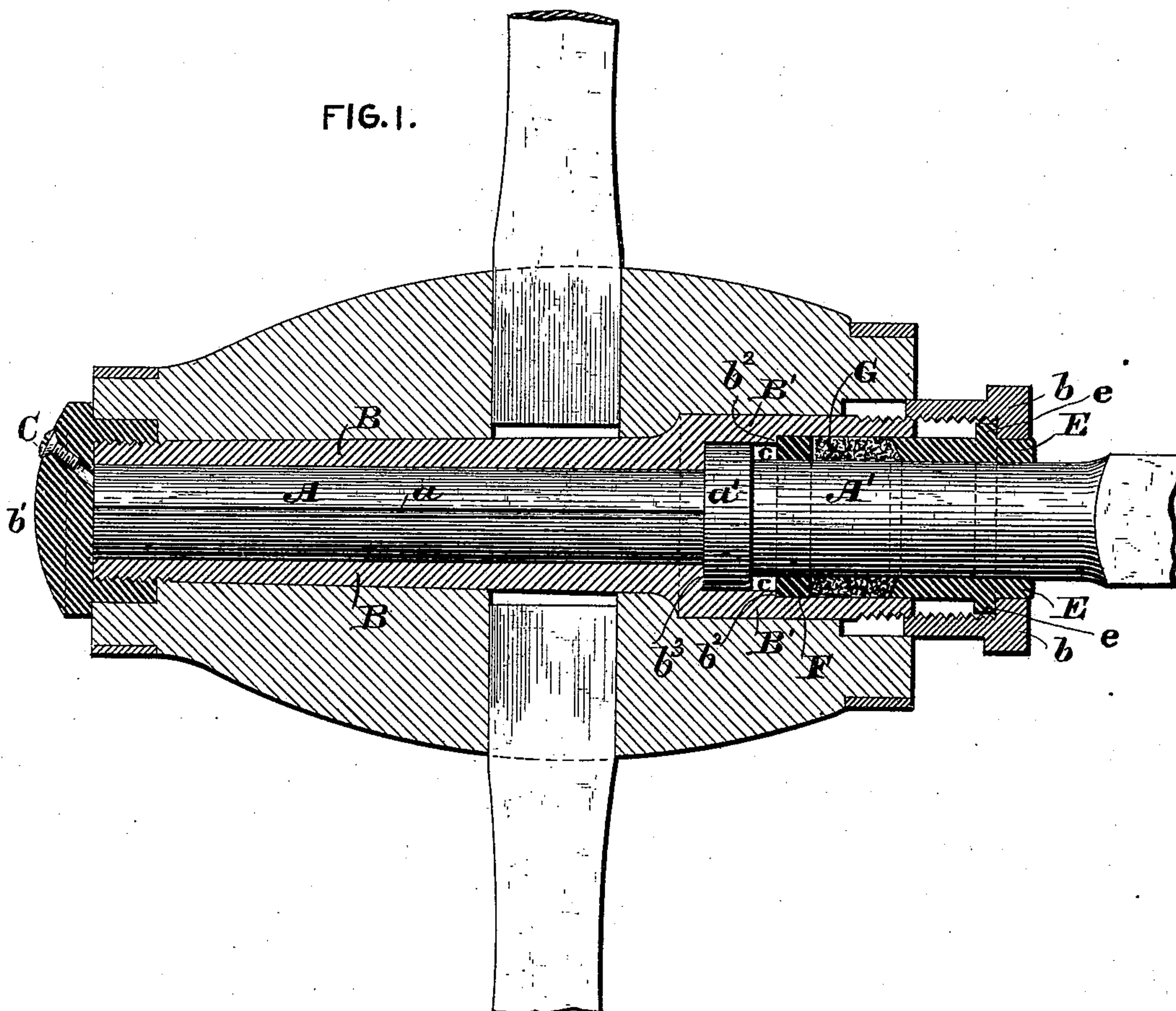


FIG. 2.

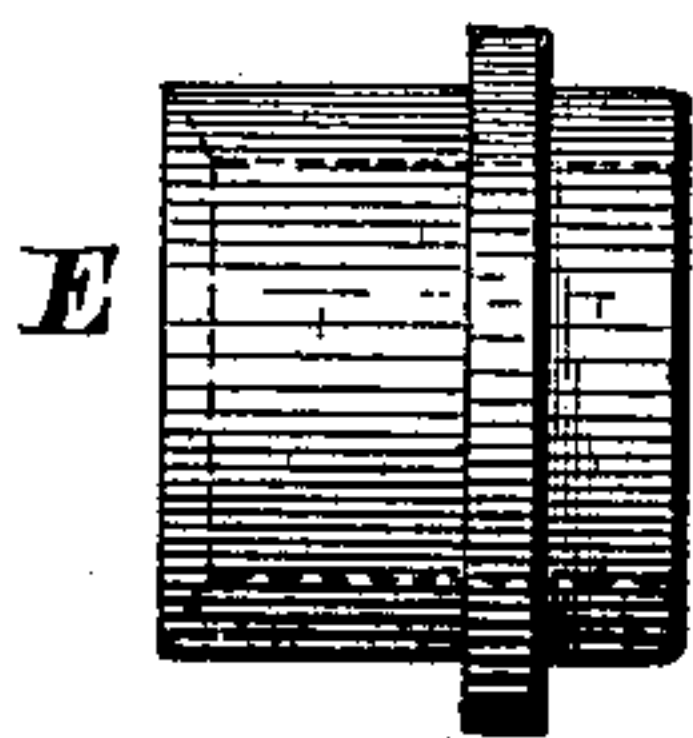


FIG. 3.

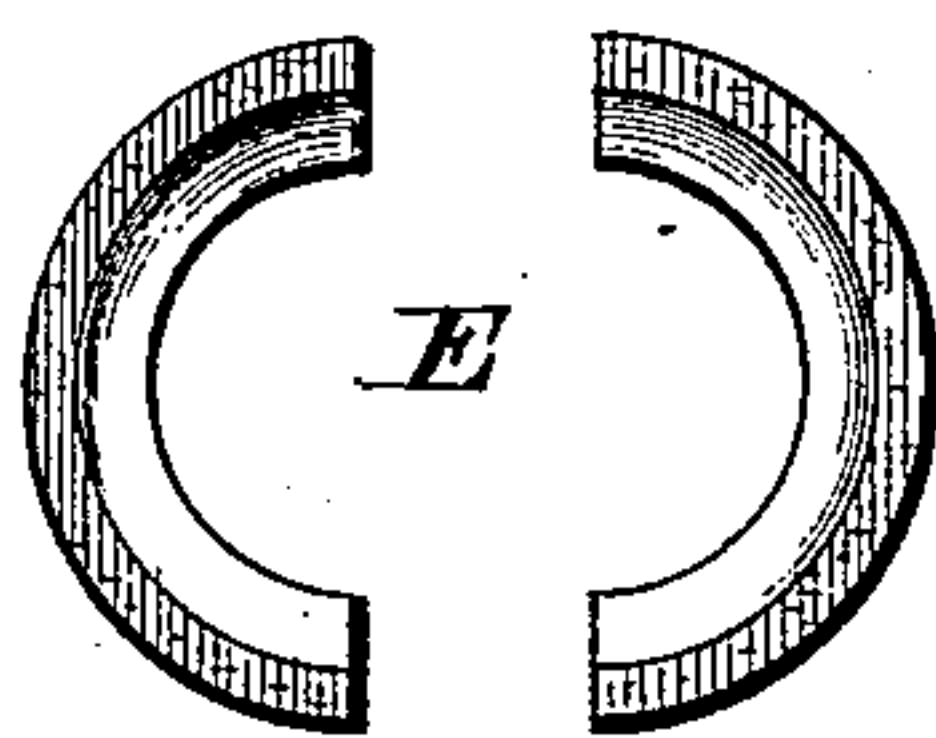


FIG. 4.

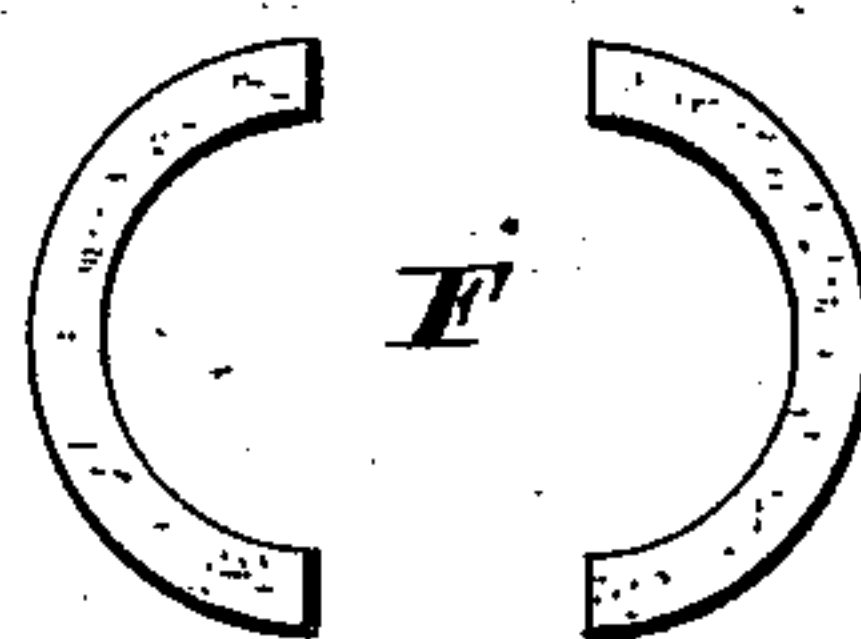


FIG. 5.



ATTEST.

J. Henry Kaiser
Joseph P. Clarke.

INVENTOR.

Justice W. Marshall
By J.W. Dyer
Attorney

UNITED STATES PATENT OFFICE.

JUSTICE W. MARSHALL, OF CAZENOVIA, NEW YORK.

SELF-OILING AXLE.

SPECIFICATION forming part of Letters Patent No. 333,532, dated January 5, 1886.

Application filed September 26, 1885. Serial No. 178,280. (No model.)

To all whom it may concern:

Be it known that I, JUSTICE W. MARSHALL, a citizen of the United States, residing at Cazenovia, in the county of Madison and State of New York, have invented a certain new and useful Self-Oiling Axle, of which the following is a full, clear, and exact description, which will enable those skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

Similar letters refer to similar parts in each figure.

My invention relates to a self-oiling carriage-axle.

The object of my invention is to provide an axle to be employed for light or heavy carriages and wagons with iron axles that can be oiled without removing the wheel, an axle that will be by its construction kept free from dust and mud, and obviate the wear of the journal and journal-box therefrom that obtains in axles heretofore made.

I attain this object by the method of construction of an axle illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal sectional view of my invention complete. Fig. 2 is a side view of one section of the packing-gland E. Fig. 3 is an end view of the two sections of the packing-gland E. Fig. 4 is a side view of the two sections of the metal washer F. Fig. 5 is an edge view of the washer F.

A represents the journal of the axle, and is constructed of the usual material.

A' is an enlarged section of the axle-journal. This re-enforcement is designed to add strength to the axle, which at this point sustains the greatest amount of strain. By this means a lighter axle may be employed than can be used in the ordinary axle.

Upon the upper side of the axle-journal is provided an oil-groove, *a*, and at the point of the re-enforcement of the axle is provided a shoulder, *a'*, which operates as a shoulder both ways to the end-play of hub or journal-box.

The journal or axle-box B has an enlarged section, B', to correspond with the re-enforced

section of the tube A', and to receive the shoulder *a'*, the washer F, and the packing-gland E. It is also provided with a screw-thread upon its outer surface at each end, one being to receive the cap-nut *b'*, the other the open-gland nut *b*.

Upon the re-enforced portion of the journal A', and near the shoulder *a'* is placed a metal washer, F, made in two sections, (see Fig. 4,) which rests against a small shoulder, *b''*, of the journal-box.

The space *c*, between the axle-shoulder *a'* and the washer F, is the oil-chamber and end-play room of the hub.

At the outer face of the washer F is provided the space G, in which is employed clean wool or other elastic packing.

At the inner end of the hub or journal-box is provided a close-fitting gland, E, made in two sections (see Figs. 2 and 3) with a shoulder, *e*. This gland E is pressed inwardly upon the packing G by turning the gland-nut *b*, and is thus held in place firmly.

The washer F and the gland E are made in two sections in order to place them upon the axle. Their diameter being less than the circumference of the axle-shoulder *a'*, they could not otherwise be taken off and put on.

In the cap-nut *b'* is provided an oil-hole having a tight screw-cap, C. To oil the axle this screw-cap is removed, the hub pulled forward upon the axle until the shoulder *a'* strikes against the washer F. It will be seen by Fig. 1 that when the hub has been so moved forward upon the journal the oil-space *c* will appear upon the opposite side of the shoulder *a'*, and an equal space will be opened between the cap-nut *b'* and the outer end of the axle A'. This done, fill the oil-cavity that is thus made at the outer end of the axle, and turn down the oil-cap screw that it may not leak. Then by moving the hub back upon the axle the space at the end of the axle is closed and the oil is forced along the groove *a* and into the oil-space *c*, as appears in Fig. 1. The axle having been once thoroughly oiled, it will last much longer and be a much easier running journal than can be made under any other known process. The oil in the chamber *c* acts as a cushion, and prevents any rattle or

noise by the shoulder of the axle a' striking against the washer F or the box-shoulder b^3 , and the oil will be worked back and forward upon the axle by the end-play of the journal box or hub.

I am aware that prior to my invention self-lubricating axles having radial openings, chambered axle-spindles with enlarged sections and longitudinal oil-grooves have been proposed, as shown by Patent No. 244,299, dated July 12, 1885, to Jas. V. Randall, and Patent No. 87,609, dated March 9, 1869, to J. T. Wilson; but such devices make no provision for radial openings allowing a lateral movement or end-play of the spindle, by which the oil is forced from end to end of the spindle; nor do they provide a packing-box with glands for the purpose of preventing the oil from leaking out, and the entrance of dust and grit to the bearing-shoulder.

By my invention the arrangement of having the oil-chamber c allows a lateral movement of the spindle, which being moved back to the farthest limit of the oil-chamber c opens a corresponding space at the end of the spindle, which being filled with oil the movement of the axle laterally forces the oil back and forth along the spindle, and the oil operates as a cushion and prevents all noise and rattle.

In all other devices where there is no end-

play of the spindle the oil-groove stops up and becomes useless, which explains the absence of the application to actual use of the many devices heretofore proposed.

By my invention the oil-grooves are kept clean and free by the force created by the lateral movement of the spindle, and perfect lubrication obtains at all times.

I do not desire to cover the claims set forth in said patents above quoted, as they are described and set forth and illustrated by their accompanying drawings; but

What I do claim as my invention, and desire to secure by Letters Patent, is the improvement in self-lubricating axles, as herein set forth and illustrated, which is—

The combination of the straight solid axle A with the enlarged section A' , and shoulder a' , the oil-groove a , the axle-box B, having the enlarged section B' , and shoulder b^2 and b^3 , the cap-nut b' , the radial opening for oil-space c , the washer F, the packing-box G, the packing-gland E, having the shoulder e , the gland-nut b , the oil-hole, and screw C, all substantially as and for the purpose set forth and illustrated.

Dated September 11, 1885.

JUSTICE W. MARSHALL.

Witnesses:

S. F. CHAPKE,
M. S. POTTER.