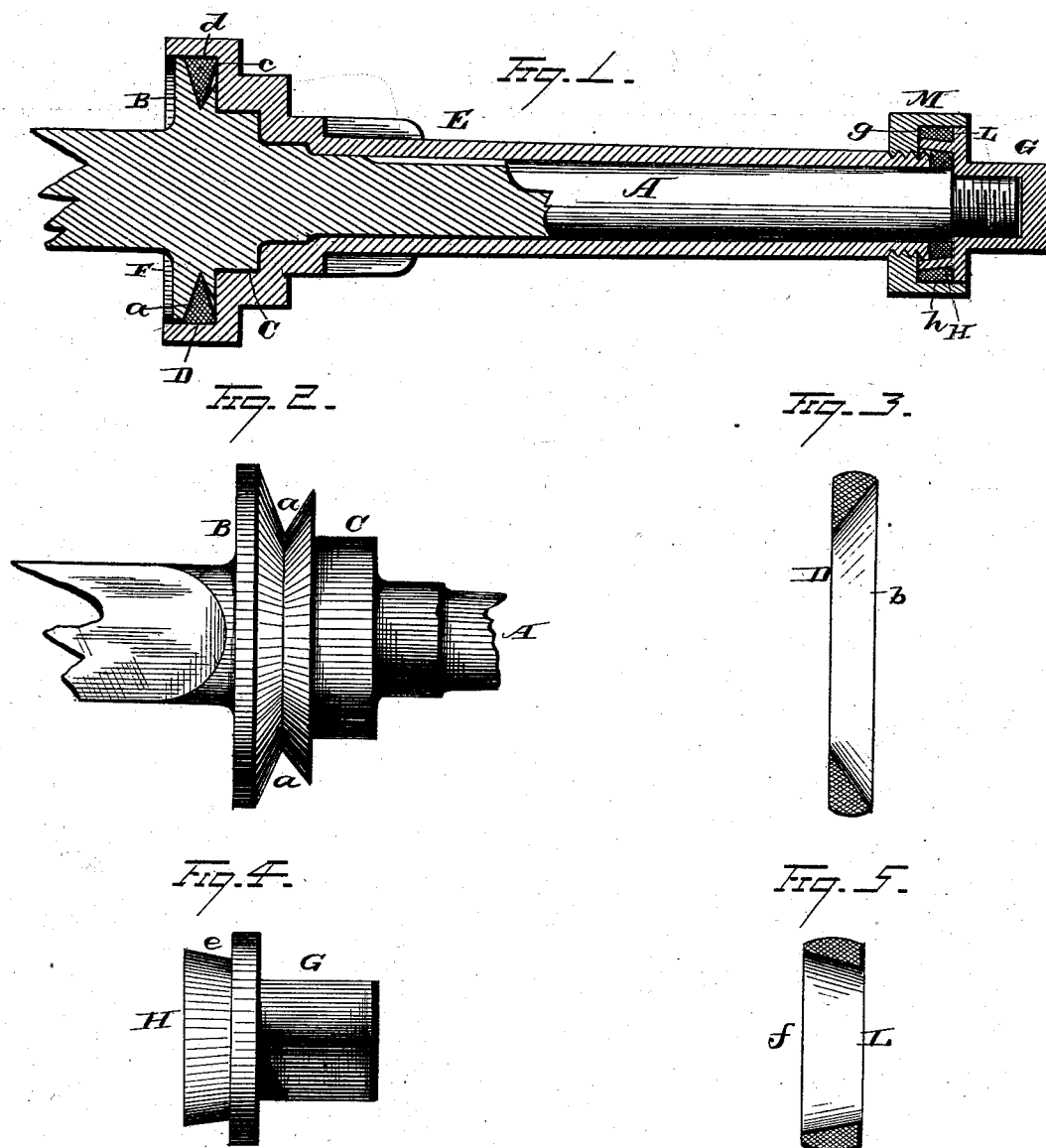


(No Model.)

S. MARSH.
Axle Box.

No. 235,546.

Patented Dec. 14, 1880.



WITNESSES
E. Thompson
A. C. Briggs

INVENTOR
Samuel Marsh.
R. H. Thompson
ATTORNEY

UNITED STATES PATENT OFFICE.

SAMUEL MARSH, OF GLENHAM, NEW YORK.

AXLE-BOX.

SPECIFICATION forming part of Letters Patent No. 235,546, dated December 14, 1880.

Application filed October 18, 1880. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL MARSH, of Glenham, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Axle Spindles and Boxes; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

The object of my invention is to provide improved means for excluding grit and foreign substances from the bearing-surfaces of axle-spindles, and also to prevent the lubricant against escaping from between the axle-boxes and their spindles.

To this end the invention consists, first, in providing a collar back of the butting-ring on an axle-spindle, and fitting a packing-ring in a V groove formed in the collar, said packing-ring being tapering in cross-section from its outer to its inner edge, whereby it may expand radially when the axle-box is forced against it. The inner end of the axle-box is provided with a chamber, in which the packing-ring is snugly fitted.

The invention consists, secondly, in providing the inner face of the axle-nut with a collar having a V groove, in which is fitted a packing-ring adapted by its tapering cross-section to spread outwardly in all directions when the nut is screwed up against the axle-box. The outer end of this axle-box is provided with a chamber in which the packing-ring of the nut is closely fitted.

In the drawings, Figure 1 is a longitudinal section of an axle-spindle illustrating the invention. Fig. 2 is a detail perspective view of the butting-ring and grooved collar. Fig. 3 is a detail view of the packing-ring which fits in said collar at the inner end of the spindle. Fig. 4 is a detail perspective view of the inner face of the axle-nut. Fig. 5 is a detail view of the packing-ring which is secured to said nut.

The spindle A of an axle is provided with a collar, B, located immediately back of the butting-ring C. This collar is formed with a V groove, a, in which the packing-ring D is

secured. This ring is made tapering in cross-section from its outer to its inner edge. Its face, which bears against the back of the collar, is formed plain, while its opposite face, b, is concave or dish-shaped. This packing-ring has its inner edge fitted in the collar-groove, while its main portion projects therefrom. The inner end of the axle-box E is provided with a chamber, F, in which the packing-ring and the collar are inclosed. The end wall, c, of this chamber presses against the front face of the packing-ring, and thereby forces the latter to expand radially, the concave form of the front face of the packing-ring causing this expansion. The outer edge of the packing-ring is thereby pressed in all directions against the inner side, d, of the said box-chamber, and a very tight joint is formed between the two, the closeness of the joint being increased or lessened, according as the axle-nut forces the axle-box with greater or less force inwardly. This axle-nut G has its inner face provided with a collar, H, having a V groove, e, formed therein to receive a packing-ring, L. This packing-ring is formed similar to the packing-ring which fits about the collar on the inner end of this spindle. Its face, which fits against the inner face of the nut, is formed plain, while its opposite face, f, is formed concave or dish-shaped. The inner thin edge of this ring fits in the groove in the collar of the nut, and its main portion projects therefrom. When the nut is screwed on the spindle the concave face of the packing-ring bears against the end wall, g, of a chamber, M, formed on the outer end of the axle-box. The ring, being thus compressed, expands radially, and its outer edge is forced in all directions against the inner side, h, of said chamber. In this manner both ends of the axle-box are effectually guarded to prevent the introduction of grit or foreign substances between the bearing-surface of said box and its axle-spindle; also, the axle-lubricant is packed in place and prevented from escaping at both ends of the axle-box.

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

1. The combination, with an axle-spindle having a grooved collar located back of its butting-ring, of a packing-ring formed taper-

ing in cross-section from its outer to its inner edge, and an axle-box having its outer end provided with a chamber in which said packing-ring is snugly fitted, substantially as set forth.

5 2. The combination, with an axle-nut having its inner face provided with a grooved collar, and a packing-ring tapering from its outer to its inner edge in cross-section, of an
10 axle-spindle and an axle-box having its outer end provided with a chamber in which said

packing-ring is tightly fitted, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of 15 October, 1880.

SAMUEL MARSH.

Witnesses:

SAMUEL K. PHILLIPS,

WM. N. RICHARDS,

JNO. COOPER.