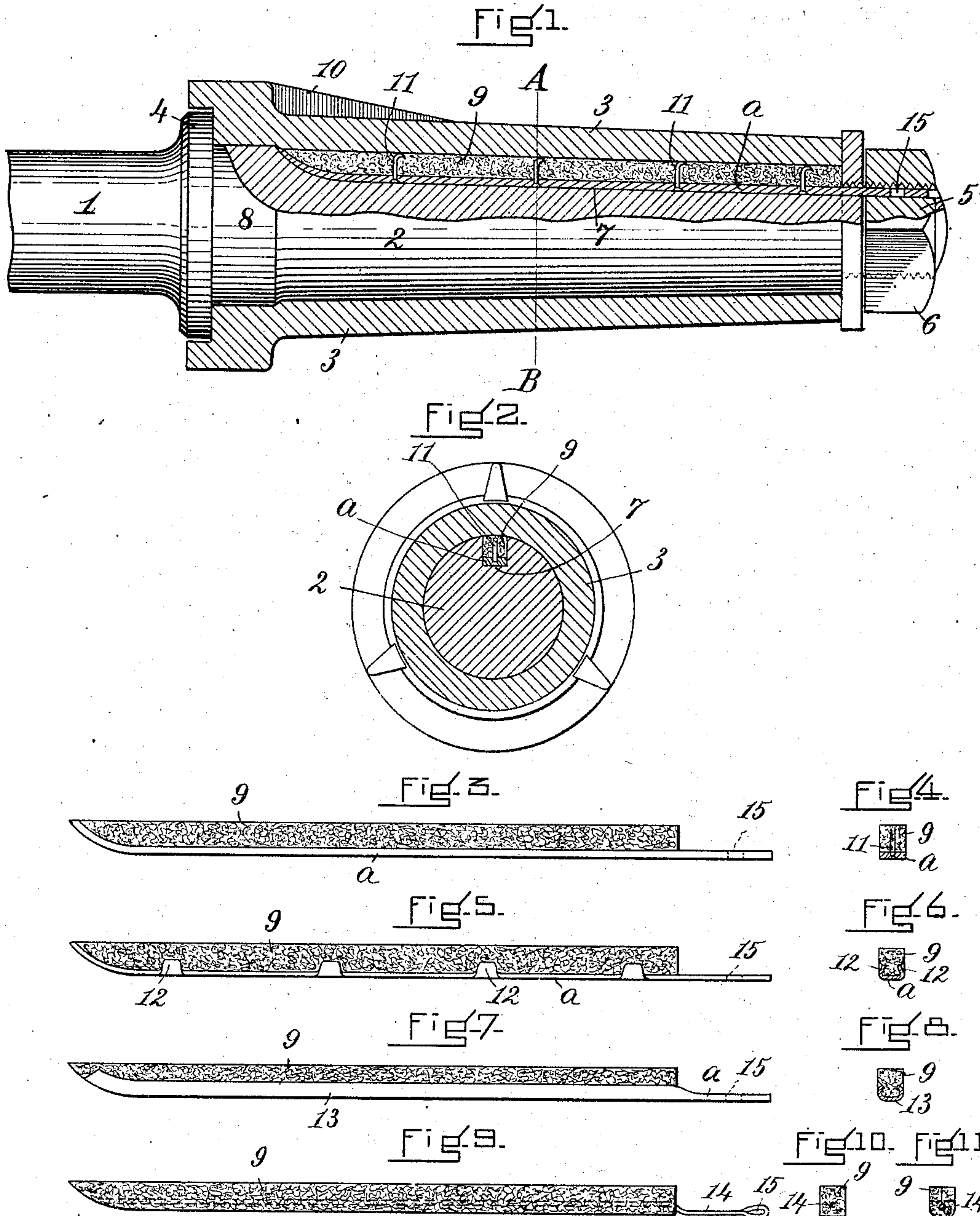


No. 785,242.

PATENTED MAR. 21, 1905.

W. VANDENBURGH.
LUBRICATOR FOR AXLE SPINDLES.

APPLICATION FILED APR. 8, 1903.



WITNESSES.

Fred. C. Dorr.
Ella A. Woodbury

INVENTOR

Walter Vandenburg
by Henry Chadborn
his atty.

UNITED STATES PATENT OFFICE.

WALTER VANDENBURGH, OF MELROSE, MASSACHUSETTS.

LUBRICATOR FOR AXLE-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 785,242, dated March 21, 1905.

Application filed April 8, 1903. Serial No. 151,626.

To all whom it may concern:

Be it known that I, WALTER VANDENBURGH, of Melrose, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Lubricators for Axle-Spindles, of which the following is a specification.

This invention relates to improvements in lubricating devices for axles, and has for its object to provide novel means whereby the axle may be easily and quickly lubricated even without removing the wheel from the axle and whereby my improved device of a sufficient size to contain lubricating material necessary for a prolonged period may be applied to an axle without materially weakening the axle.

The invention consists in providing the axle-spindle, and preferably the top surface thereof, with a longitudinal groove extending from the extreme outer end of the axle substantially the entire length of the spindle and into which groove is inserted a wick or pad, of felt or other suitable absorbent material, which is substantially the same size and shape in its cross-sectional area as the size and shape of the cross-sectional area of the groove, and which pad is stiffened so as to allow it to be inserted within the groove from the open end thereof even when the hub of the wheel or the box therein is upon the axle.

The invention is carried out substantially as illustrated on the accompanying sheet of drawings, on which several means for stiffening the absorbent wick or pad have been shown and whereon like characters of reference refer to like parts wherever they occur on the different parts of the drawings.

On the drawings, Figure 1 represents a sectional side elevation of an axle-arm provided with my improved lubricating device, the box of the axle which is inserted within the hub of a wheel and rotates upon the axle-spindles having been shown in section. Fig. 2 represents a cross-section of the axle-spindle and its surrounding box on the line A B in Fig. 1. Figs. 3 and 4 represent a side elevation and a cross-section of the absorbent wick or pad constructed as that shown in Figs. 1 and 2. Figs. 5 and 6, 7 and 8, 9, 10, and 11 represent views similar to those shown

in Figs. 3 and 4, but of various ways of stiffening the wick or pad.

The axle 1 is provided with a spindle 2 and a box or bushing 3, and said parts are of any of the common and well-known forms now in use, but are preferably of forms corresponding to those shown, in which 4 is the flange at the inner end of the spindle of the axle, which flange forms a shoulder against which the inner end of the box 3 rests when the wheel is upon the axle. The spindle is also provided at its outer end with a slightly-reduced portion 5, which is externally screw-threaded and receives the nut 6, by which the box or the hub of a wheel is kept upon the spindle of the axle.

Upon the spindle 2 and extending longitudinally thereon is formed a groove 7, which is preferably rectangular in cross-section, as shown, but which may be made in other shapes, if so desired. This groove extends substantially the entire length of the spindle from its outer end to the reinforced portion 8 of the spindle and is of such a depth as to cut through the screw-threads on the reduced outer portion of the spindle. The inner end of the groove has its bottom curved upward, substantially as shown in Fig. 1.

Within the groove 7 is placed an absorbent wick or pad 9, made of felt or other analogous material, but preferably of felt. This wick or pad is substantially the same size in cross-section as that of the groove and is of a length equal to that of the groove from its inner end to the shoulder formed by the reduction of the outer end of the axle-spindle. It will thus be seen when the wick or pad is within the groove in the spindle that its upper edge will come into contact with the inner surface of the box or bushing 3, which is placed within the hub of the wheel, and this box or bushing is prevented from turning in said wheel by the narrow longitudinal flange or fins 10.

In order to stiffen the absorbent wick or pad, so that it may be easily inserted within the groove in the spindle even when wheel or box is upon the spindle, I attach a thin strip α of metal, wood, or other stiff material to that edge of the felt or other absorbent material which is to engage and rest upon the bottom of the groove in the spindle, as shown in Figs.

1 to 6, inclusive, and this thin strip is secured to the felt by means of pins 11 11, attached to the strip so as to project through the wick or pad, and said pins are preferably bent at their upper end, so as to fasten the wick or pad to the strip, as shown in Figs. 1, 2, 3, and 4, or said strip may be provided at intervals upon its opposite sides with short projections 12, which are bent upward against the opposite sides of the wick or pad and act to clamp the wick or pad upon the strip, as shown in Figs. 5 and 6. Said wick or pad may also be stiffened by means of a tube 13, split longitudinally upon one side, then spread open sufficiently to receive the wick or pad and pressed together again, so as to impinge the lower edge of the wick or pad, as shown in Figs. 7 and 8; or said wick or pad may be stiffened by the insertion of a wire 14 within the body of the same and extending longitudinally from end to end thereof, having its inner end attached to the wick or pad, so that it cannot be withdrawn from the same after being inserted therein, as shown in Figs. 9 and 10, or the wick or pad may be folded longitudinally upon itself around the wire 14 and secured to the wire by stitching through the absorbent material from which the wick or pad is made or by cementing the contacting surfaces together, as shown in Fig. 11 in a cross-sectional view. Although good results may be obtained by stiffening the wick or pad in any of the above manners, I prefer to use the construction shown in Figs. 1, 2, 3, and 4.

The stiffening device used upon the wick or pad is preferably made so as to project slightly beyond the outer end of the wick or pad, and this projecting portion of the stiffening device rests within that portion of the groove 7 which is in the reduced outer portion of the axle-spindle, being made sufficiently flat to be below the threads upon said portion of the spindle, and thus does not interfere with the screwing of the nut upon said portion. This projecting portion of the stiffening device is preferably provided with a perforation 15 to receive a hook or other similar implement which may be used to draw the wick or pad from the groove.

This my improved lubricating device is very simple in construction and operation, is very effective in its results, inexpensive to apply to an axle, and can be applied to any of the axles now in common use without removing the axle from the wagon or other vehicle. The introduction of the lubricating device into an axle does not materially weaken the axle, and as practically the entire space within the groove is occupied with the wick or pad it will continue to lubricate the axle for a long time after the wick or pad has once been saturated with the lubricant.

If the wick or pad becomes dirty and gritty or becomes gummed by the lubricants, it may

be easily and quickly removed from the groove and cleaned in a suitable liquid to remove such dirt, grit, or gum and may again be saturated with the oil or other lubricant and reinserted within the groove, where it will again act to lubricate the wheel, as before. If the wick or pad is worthless when removed from the axle, it may easily and at a slight expense be replaced by a new one saturated and ready for use.

It will be seen that the axles on a wagon may be lubricated or oiled at any time even when the same is heavily loaded and upon the street, as it is unnecessary to remove the wheel from the axle in order to lubricate the axle.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. A lubricating device for an axle-spindle, consisting of an axle-spindle having a groove extending longitudinally upon the upper surface thereof and from the outer end of the spindle, a wick of absorbent material saturated with a lubricant, said wick filling the entire length, width, and substantially the depth of the groove in the spindle with its outer edge in engagement with the inner surface of the box used upon the spindle, a stiffening-strip on one side of the wick extending the entire length of the wick and longitudinally thereto, and means to attach said strip to said wick whereby the wick may be withdrawn from the groove in the spindle or reinstated therein from the outer end of the spindle while the box is upon the same and the entire groove be used to contain the lubricant.

2. A lubricating-wick for an axle-spindle, made from absorbent material and a stiffening-strip on one side only of the wick but extending the entire length of the wick and longitudinally thereto, and means to attach said strip to said wick whereby the wick may be removed from or reinstated within a groove in the spindle of an axle from the outer end of the groove while the box is upon the axle-spindle and the wick may be made the same size as the groove in the spindle.

3. A lubricating-wick for an axle-spindle, made from absorbent material, a stiffening-plate upon one side only of said wick but extending the entire length of the wick, and projecting points upon said plate which points enter the wick and attach the wick to the stiffening-plate, whereby the lubricating-wick may be inserted or removed from a groove on the surface of an axle-spindle from the end of the groove and the wick be made sufficiently large to fill the entire groove in the spindle.

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

WALTER VANDENBURGH.

Witnesses:

HENRY CHADBURN,
MAY F. FULLER.