

J.L. Sorber Axle Lubricator.

N^o 76,541.

Patented Apr. 7. 1868.

Fig. 1.

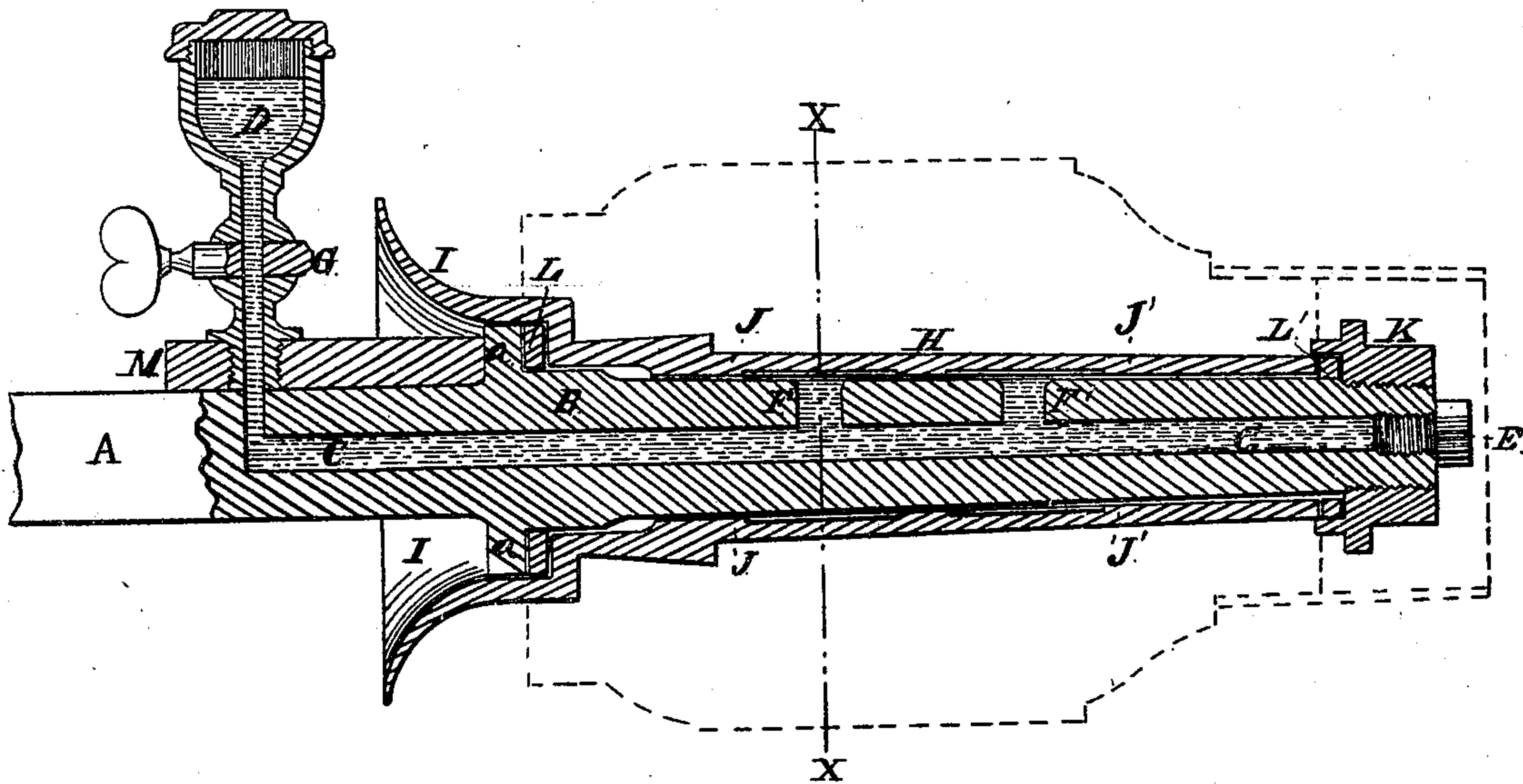


Fig. 2.

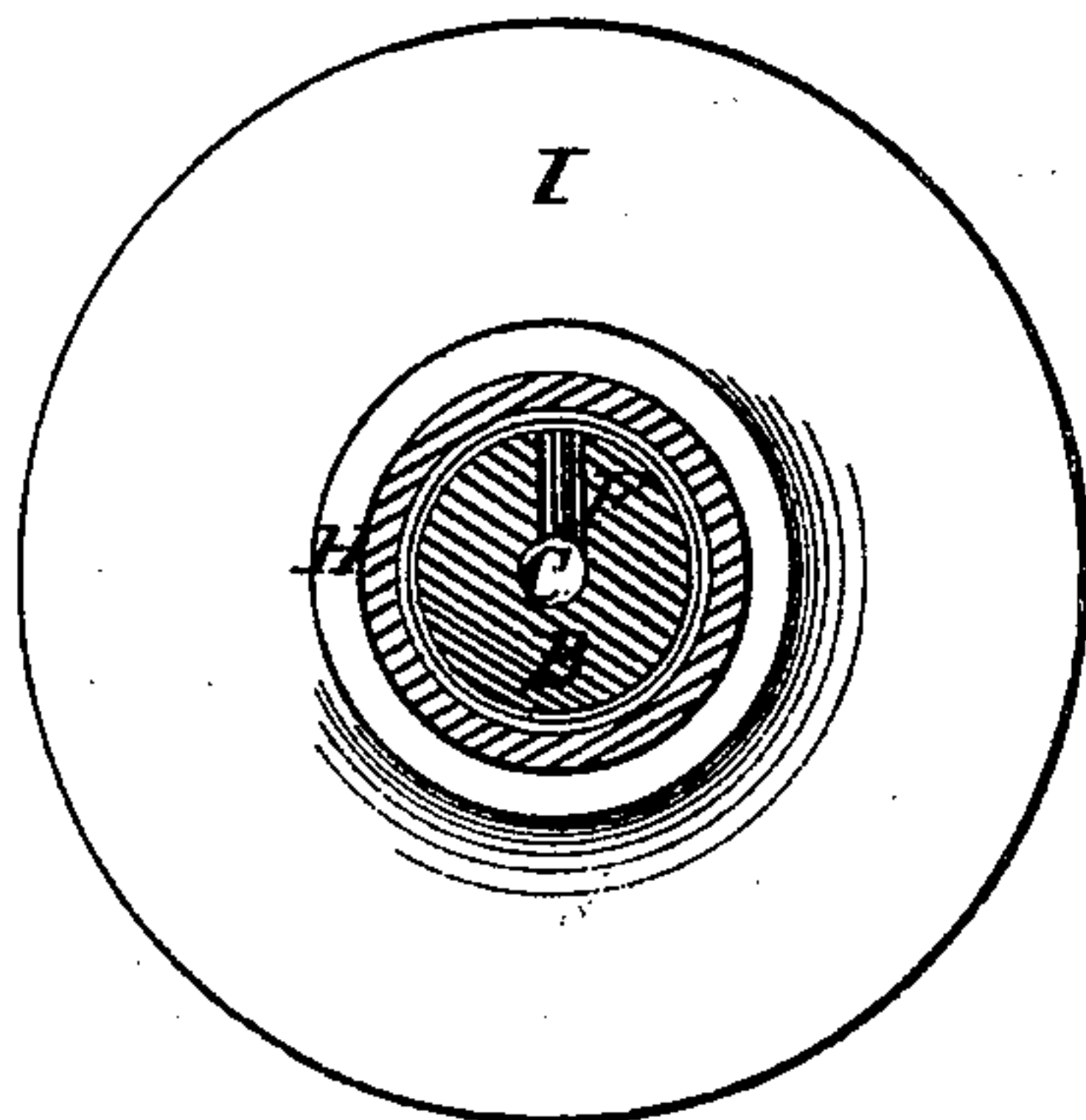
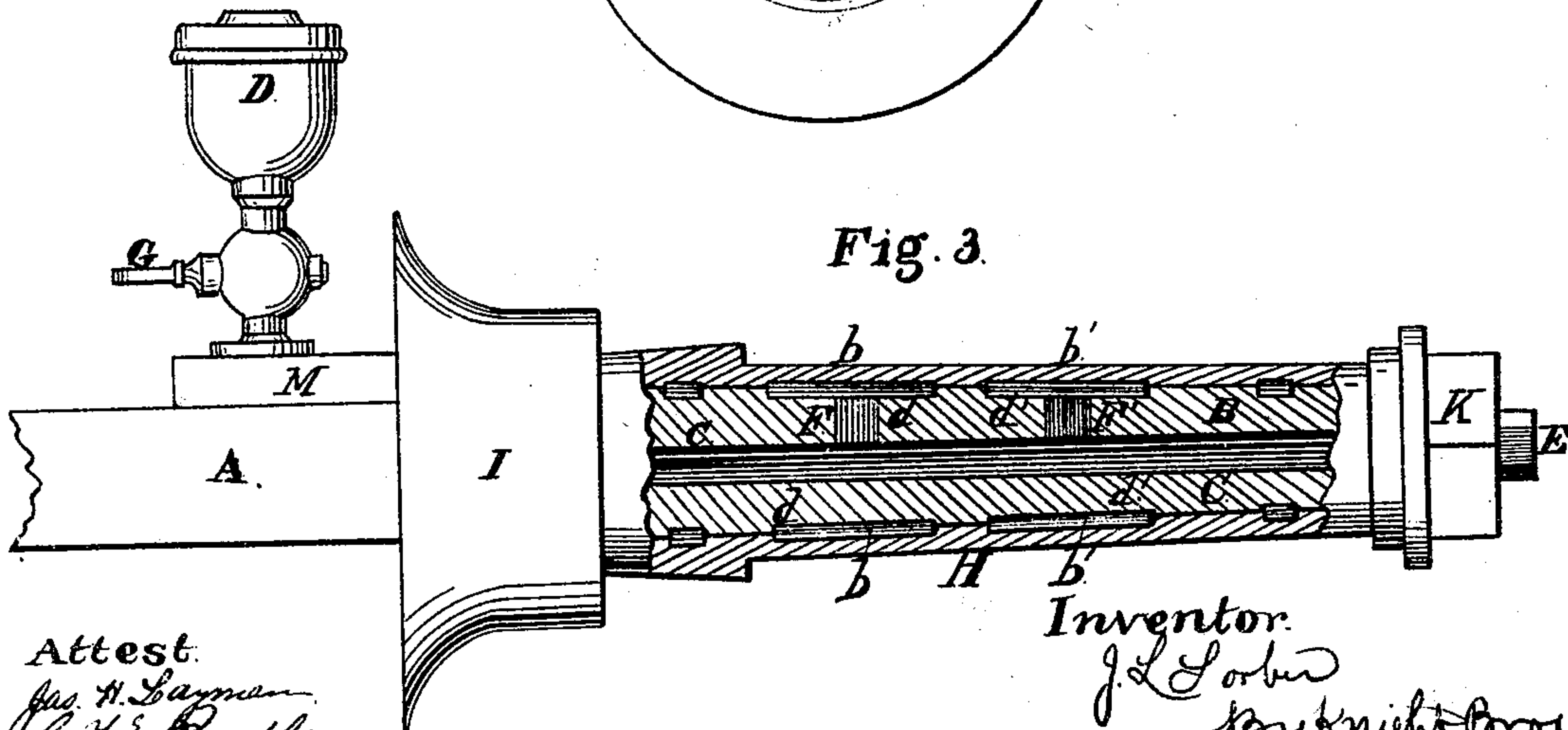


Fig. 3.



Attest.

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JACOB L. SORBER, OF CHILLICOTHE, OHIO.

Letters Patent No. 76,541, dated April 7, 1868.

IMPROVEMENT IN THE MODE OF LUBRICATING AXLES.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, JACOB L. SORBER, of Chillicothe, Ross county, and State of Ohio, have invented a certain new and useful Mode of Lubricating Carriage-Axles; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification.

The first part of my invention consists in making the spindle of a carriage-axle tubular, and providing it with suitable ducts, chambers, and an elevated oil-reservoir, whereby the spindle and its accompanying box can be constantly lubricated when the vehicle is in motion, while the supply of oil can be shut off when the carriage is at rest.

The second part of my invention consists in "coring out" the box, so as to diminish the amount of bearing-surface on the spindle, by which means the friction between these two members is reduced to such an extent that the carriage can be drawn with the least amount of exertion on the part of the horse, while at the same time the circulation of the oil is facilitated.

The third part of my invention relates to a sand and mud-guard, which is formed on the inner end of the box in such a manner as to prevent sand, dust, and dirt from entering the box and spindle. In the accompanying drawings—

Figure 1 is a longitudinal section of a carriage-axle embodying my improvements.

Figure 2 is a vertical transverse section of a carriage-axle, taken at the line $x x$; and

Figure 3 represents a modification of my invention.

A represents a portion of a carriage-axle having the customary spindle B, which is provided with a longitudinal channel, C, and the inner end of this channel communicates with the elevated oil-reservoir D, while the outer end of said channel is closed by a screw-threaded tap, E. $F F'$ are ducts which are drilled through from the outside of the spindle into the channel B, and these ducts allow the oil which flows from the reservoir D to escape between the spindle and box, and thus keep their opposite surfaces constantly lubricated. The amount of oil which issues from the reservoir is regulated by the stop-cock G.

The inside of the box H is cored out at $J J'$, so as to form annular oil-chambers, and as the oil flows out from the ends of the ducts $F F'$ it is received into said chambers, and it is carried around with them as fast as the wheels revolve. These chambers being located opposite the mouths of the ducts, there is no chance for the latter to become clogged up. Another advantage arising from the use of these chambers consists in the fact that the friction is diminished in proportion to the amount of metal cored out of the box, and the bearing of the latter is brought upon the two ends of the spindle.

The inner end of the box H is provided with an outwardly-flaring flange or rim, I, which I term the sand and mud-guard, and this guard prevents dirt of any kind from entering between the box and spindle. This sand and mud-guard completely encloses the collar a of the axle, and it may either be cast with the box or attached to it in any suitable manner. The box is prevented from slipping off of the spindle by the customary screw-cap or nut K. $L L'$ are washers, which, being interposed between the collar a , cap K, and the ends of the box H, prevent rattling; and these washers may be composed of leather, India rubber, cork, or any other suitable substance.

Brazed or otherwise attached to the axle, in the rear of the collar a , is a short bar or block, M, which serves to give elevation to the reservoir D, and also imparts additional thickness and strength to the axle at the point where it is most liable to become fractured.

In the modification of my invention, shown in fig. 3, the oil-chambers are not formed in the box alone, but the spindle also has recesses, $d d'$, which correspond in position and dimensions with the annular chambers $b b'$ of said box. The tap E at the end of the spindle permits of the channel C being cleaned out in case it should become clogged up with sediment contained in the oil, or be otherwise obstructed. The stop-cock G, which regulates the flow of the lubricant, may be omitted, and the reservoir can be furnished with a wick, so that the oil may be discharged by capillary attraction, but the stop-cock is preferred, because it enables one to have complete control over the supply which issues from the reservoir.

In case the oil should become too thick to flow in extreme cold weather, the friction caused by the revolution of the box will generate enough warmth to make the oil limpid, but the hollow spindle will prevent the axle from becoming injuriously heated, no matter how high the speed may be at which the vehicle travels. The reservoir which contains the lubricant being elevated about two inches above the axle, the oil issues from the ducts F F' with sufficient force or velocity to strike against the inside of the annular chambers J J', and as the box revolves, the oil is distributed over the entire surface of the spindle.

In the drawing, but two ducts leading from the inner channel to the outside of the spindle are shown, but it is evident that any desired number of them may be employed, the number of annular chambers on the inside of the box being increased so as to correspond with said ducts.

I claim herein as new, and of my invention—

1. The combination of the tubular spindle B C, elevated oil-reservoir D, taps E, ducts F F', and annular oil-chambers J J', as and for the purposes specified.

2. I claim providing the inner end of a wheel-hub with the outwardly-flaring sand and mud-guard I, for the purpose described.

3. I further claim attaching the bar or block M to the axle in the rear of the collar a, for the object explained and set forth.

In testimony of which invention, I hereunto set my hand.

JACOB L. SORBER.

Witnesses:

GEO. H. KNIGHT,

JAMES H. LAYMAN.