

(No Model.)

2 Sheets—Sheet 1.

T. SAUNDERS.
CAR AXLE LUBRICATOR.

No. 395,758.

Patented Jan. 8, 1889.

Fig 1

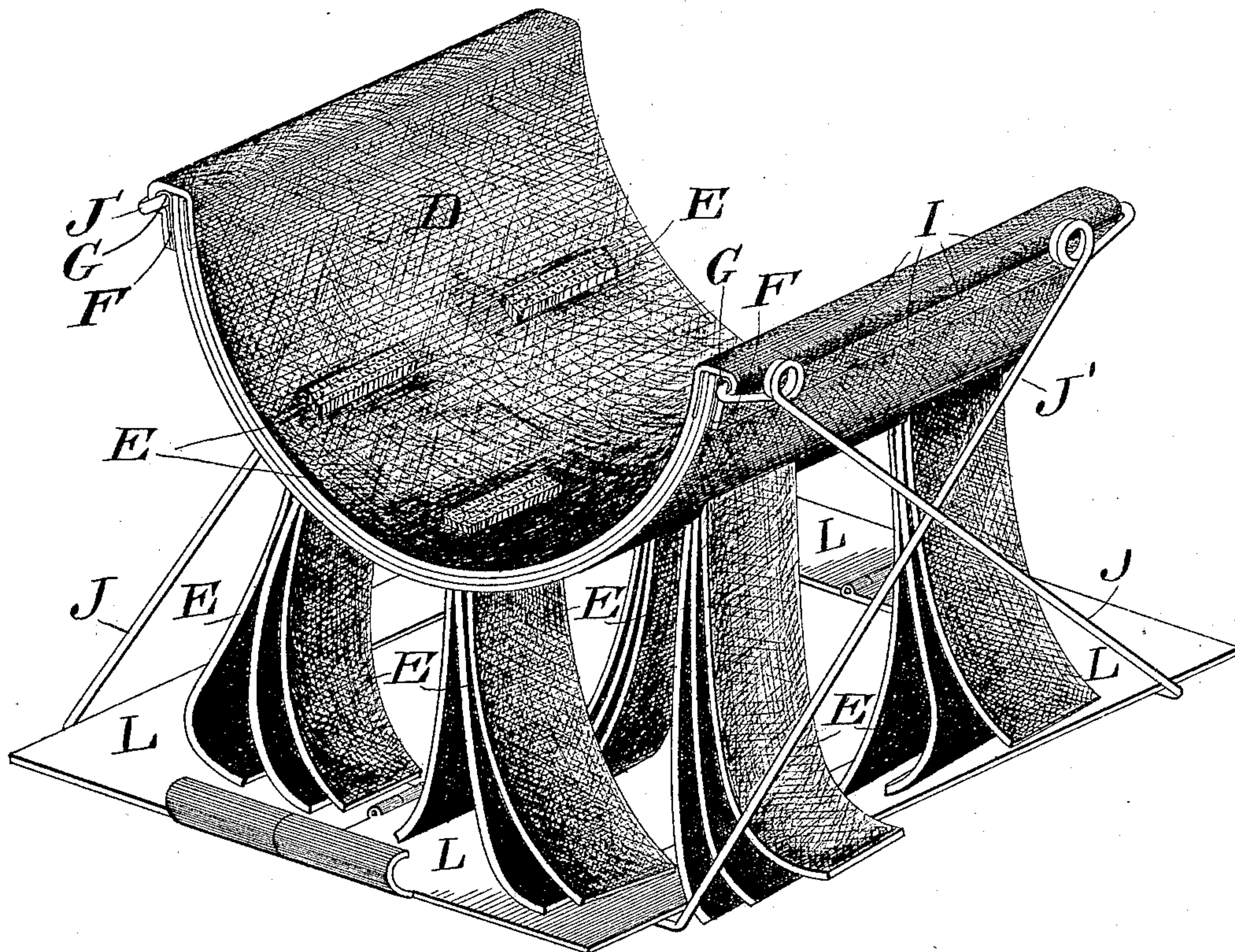
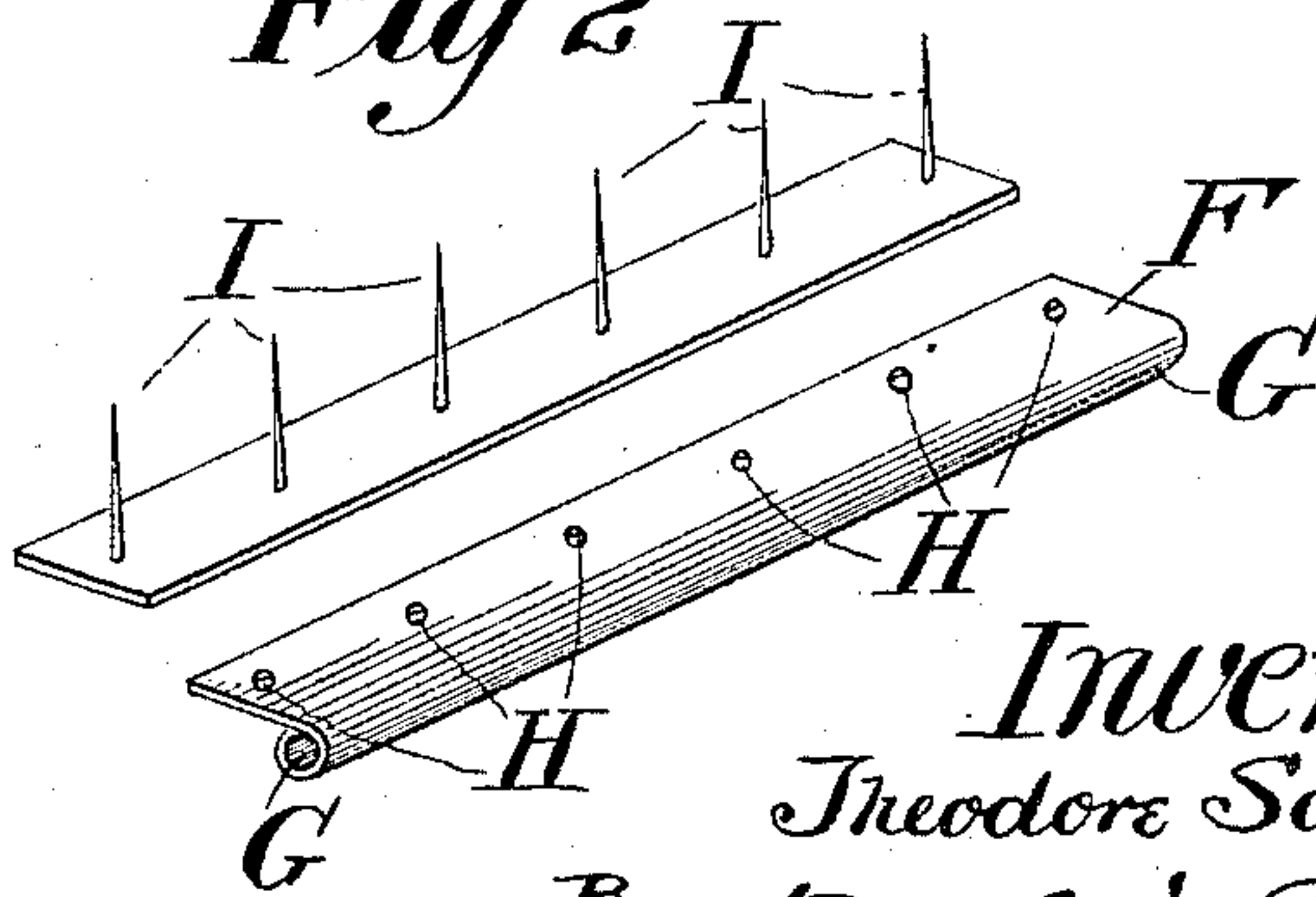


Fig 2



Witnesses.
S. Williamson
E. S. Sumner

Inventor.
Theodore Saunders

By *M. Smith*

Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig 3

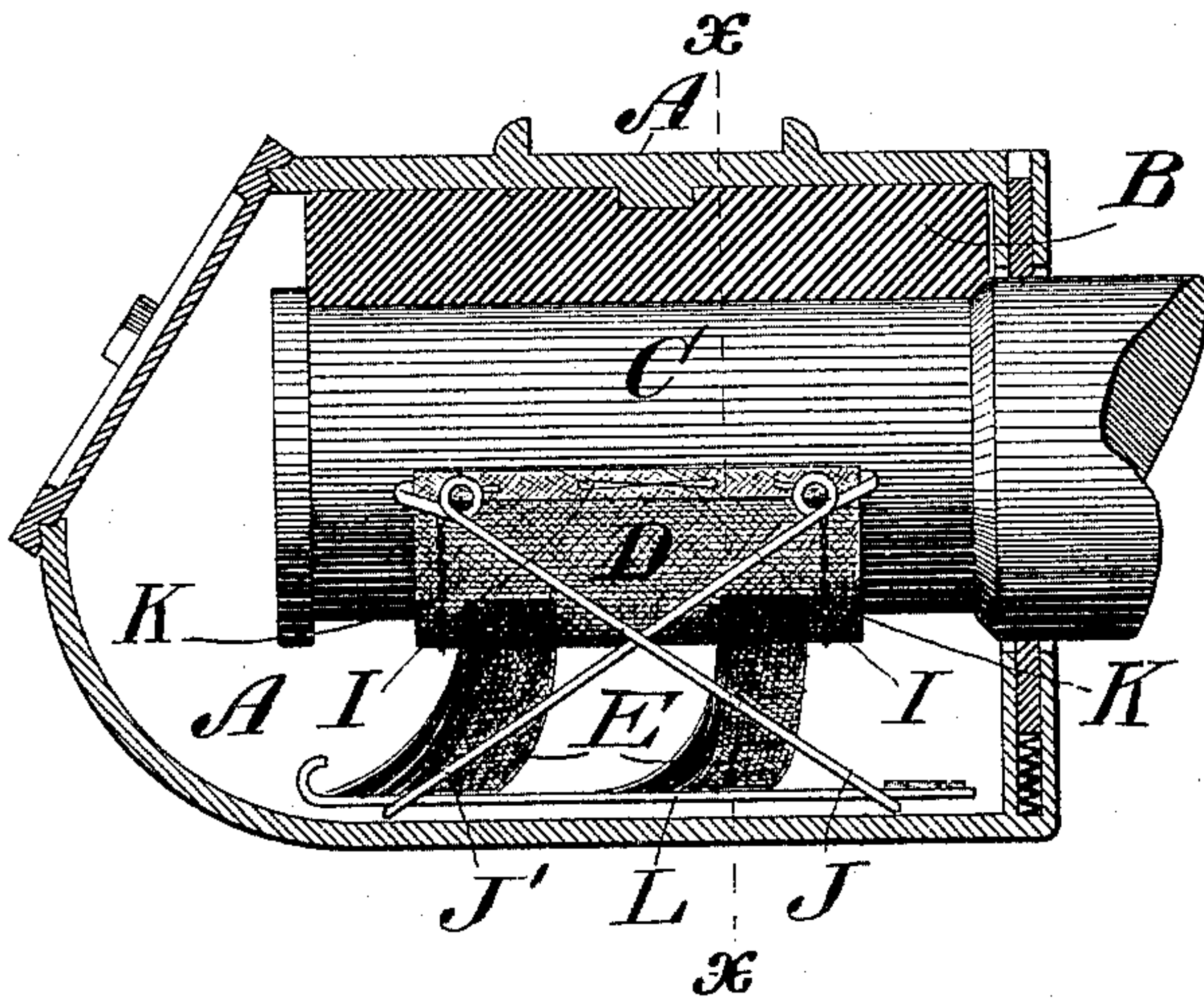
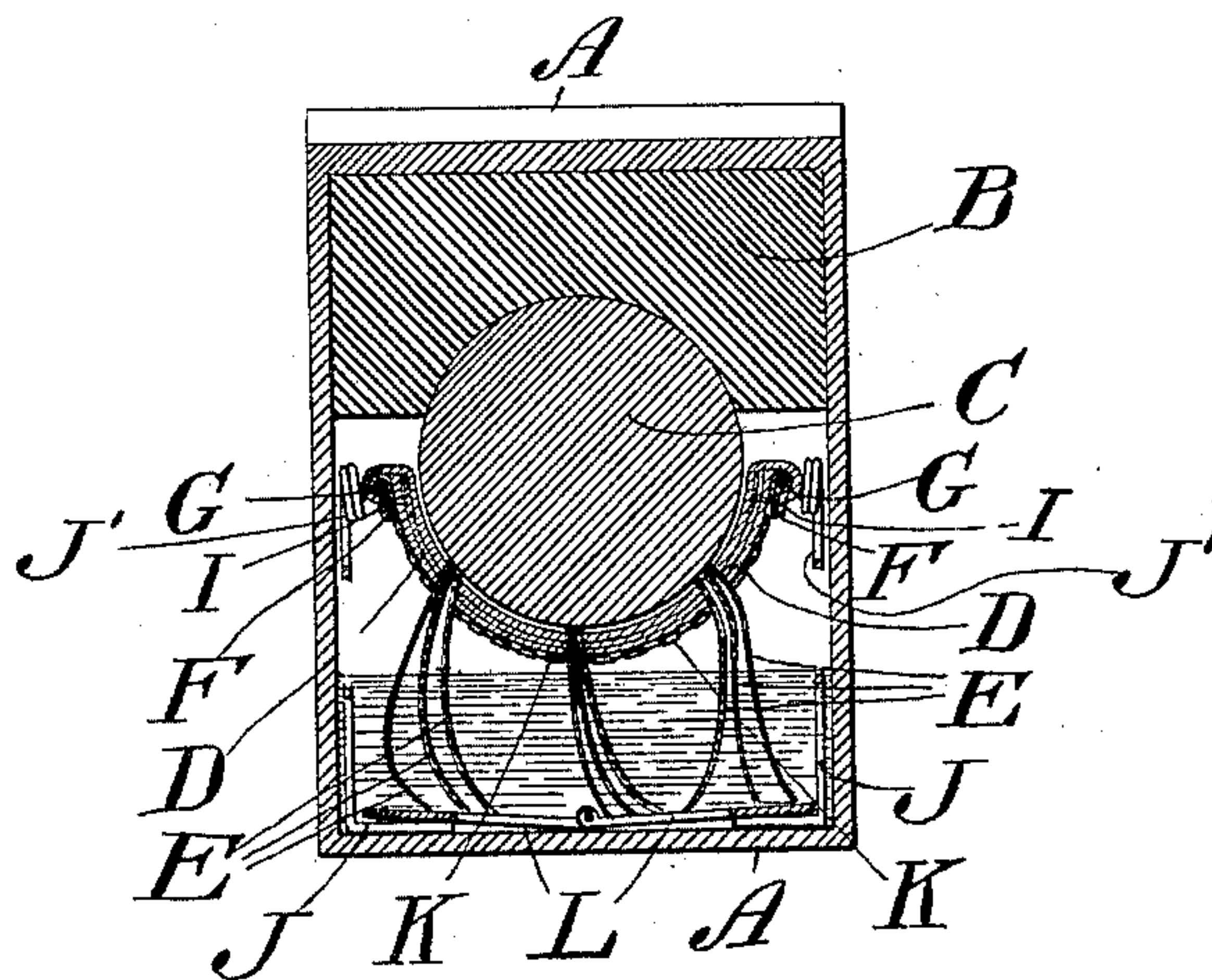


Fig 4



Witnesses
B. Williamson
E. S. Sumner

Inventor
Theodore Saunders
By *J. M. Smith*
attg

UNITED STATES PATENT OFFICE.

THEODORE SAUNDERS, OF DANBURY, CONNECTICUT.

CAR-AXLE LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 395,758, dated January 8, 1889.

Application filed June 23, 1888. Serial No. 277,961. (No model.)

To all whom it may concern:

Be it known that I, THEODORE SAUNDERS, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Car-Axle Lubricators; 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 appertains to make and use the same.

Car-axle lubricators have heretofore been devised in which pads provided with pendent wicks have been relied upon for conveying oil from a supply thereof in the axle-box to the under side of the axle-journal, and thence to the brasses or bearings. In many of these prior lubricators spring-actuated devices have been employed for supporting the pad in contact with the journal; but so far as my knowledge extends the pads have been interposed between the under surface of the journal and either flat or concave or angular surfaced plates, or bars mounted upon springs, which caused the pad to be forcibly pinched or compressed against the journal.

In one old variety of lubricator an oil-chamber incloses the axle-box and a wick passes through holes in the two side walls of the box and beneath, but in contact with, the under side of the journal, the two ends of the wick being outside of said box and submerged in oil held in said chamber, and having weights or springs applied so as to pull downward on said ends of the wick and cause its central portion to bear upward against the journal. A wick thus arranged to also do duty as a pad is always under tension throughout its length, and it is tightly drawn over and in close contact with the bottom side of the holes in the axle-box, and the absorbent capacity of the wick is obviously impaired because of its being in a stretched or distended condition, and its capacity to convey oil from its submerged end to the journal is impaired because of the passage of the wick over surfaces on which the wick closely impinges, resulting in the stripping of much of the oil from the wick before it can reach the journal.

In my improved lubricators I employ a pad

or oil-spreader having pendent wicks; but instead of pinching or compressing the pad against the journal it is flexibly held under slight tensile strain in free contact with a large portion of the journal below the bearing, because it is suspended from two spring-supports which are attached thereto at its two ends at the sides of the journal. By thus obviating pinching and compression of the pad it can freely receive the oil carried upward by the wicks and as freely impart it to and spread it over the journal; and it is not exposed to undue wear, nor is it as liable to get clogged with solid matter as when forcibly pinched between the journal and any form of supporting-plate. The pad, as used by me, operates as an oil-spreader to which oil is freely supplied by pendent wicks, which are not under tension, and hence they can exercise their fullest absorbing and oil-conveying capacities, and the pad, its supports, and the pendent wicks can be used within any ordinary car-axle box.

My pad-supports are novel in their structure, arrangement, and mode of operation in that each has a straight top to which one end of the pad is secured, so as to hinge thereon, and each has a pair of crossed legs, each having a curl or two to afford a delicate spring action. When the legs of both supports rest upon the bottom of an axle-box and the pad is beneath the journal, both supports exert pressure in vertical planes, alongside of, but not against, the journal, and hence they hold the distended suspended pad in free flexible contact with nearly all of the exposed portion of the journal. These supports being connected with each other by the pad, they can be folded toward each other and against the under side of the pad, thereby enabling them to occupy so little space that they can be readily inserted into, and removed from any ordinary axle-box. When in position for service, it is only necessary to prevent the lower ends of said supports from moving toward each other, and this I accomplish in ordinary axle-boxes by the use of a detachable keeper having edges at its sides, which serve merely as loose lateral braces for keeping the feet or lower ends of the supports in their proper positions. If, however, an axle-

box be specially constructed with a view to the use of my lubricator, it should be provided with keeping-edges in the bottom of the box, the yielding capacity of the supports readily enabling their disengagement from any such form of keepers.

To more particularly describe my improvements, I will refer to the accompanying drawings, in which—

Figure 1 in perspective illustrates one of my lubricators with its several parts in the positions they would occupy if the whole were placed within an axle-box. Fig. 2 illustrates a convenient perforated hinge-plate and a gang staple for uniting the ends of a pad to its supports. Fig. 3 illustrates a car-axle box and bearing in longitudinal vertical section, an axle-journal, and my lubricator in side view as when applied to service. Fig. 4 illustrates the same parts in cross vertical section.

The axle-box A, the journal bearing or "brass" B, and car-axle journal C are all of the usual character.

The pad or oil-spreader D is composed of flexible absorbent fabric usually about as long as one-half the circumference of the axle-journal and of somewhat less width than the length of said journal, and it has pendent wicks E, which are long enough to admit of their lower ends resting upon the bottom of the axle-box, so that when the latter is supplied with oil the wicks and pad will be freely saturated, said wicks extending through the pad for better contact with the journal.

It is immaterial how the pad and wicks may be constructed so long as they can take up oil from below and convey it to the upper surface of the pad. This pad is suspended so as to be in free flexible contact with a coincident exposed portion of the journal upon vertical spring-supports J J', each being secured to one end of the pad, so as to afford a hinging effect, which may be obtained readily either by inclosing the tops of said supports in folds of the pad or by means of holder-plates F, each having a hinge-tube, G, occupied by the top of a support, and gang staples I, which pass through the pad and through the perforations H in said plate F and are then clinched. This hinging arrangement of the pad and its supports enables the latter to be swung toward each other and folded up toward the under side of the pad, thus providing for a minimum of bulk, and enabling these parts to be readily passed into an opened axle-box and as readily removed. It will be seen that after placing the pad beneath a journal it will be only necessary to swing the lower ends of the supports outward toward the sides of the box for causing the pad to rise and occupy its proper position with relation to the journal. The pad is maintained in free flexible contact with the journal, because the supports exert slight vertical strains on the pad at each side of the journal, and a consequent slight tensile strain on the pad throughout its length, but no portion of the pad is compressed

or pinched, and hence undue wear is obviated and great durability with a maximum absorbent capacity is assured; and although journals may vary in diameter the pads may in each instance be easily adjusted thereto.

If portions of a pad should at any time be so worn or burned as to render it unable to withstand the slight tensile strain thereon, it is desirable that the tops of the supports should still be maintained in their proper relations with reference to each other and to the journal, and continue to present remaining portions of the pad in contact with the journal, and hence I sometimes employ the small loose chains K, suspended between the supports below the pad and near its front and rear sides.

It will be seen that it is important that the legs or lower ends of the pad-supports should be prevented from moving toward each other, as would naturally be liable from the jolting of a car-truck, and hence I introduce a keeper, L, which serves as a loose lateral brace, because its two side edges present surfaces against which the lower ends of the supports engage laterally. In this instance the keeper L is a sheet-metal plate in two parts, hinged together on a central longitudinal line, so that it may be folded, more or less, to enable its ready insertion and removal from the usual lid-covered opening of an axle-box. This keeper L requires to be removed preliminary to the removal of the pad and its supports only because in this instance each leg of the springs is provided with a foot which stands inwardly toward the middle of the box, it being obvious that the lower end of each of said springs should have such smooth contact with the bottom of the box as will enable the two legs of each spring to move freely toward and from each other in exerting its spring functions, and although each crossed leg of the support is straight from its foot to near its top a coil or two in each affords ample spring capacity for the delicate service desired. While this particular form of spring-support has special value, other forms of spring-support may be employed without departure from those portions of my invention which relate to the suspension of the pad in free flexible contact with a journal.

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

1. In a car-axle lubricator, a flexible absorbent pad or oil-spreader, in combination with supports which are connected to said pad only at its ends, and wicks pendent from said pad between said supports, substantially as described, whereby said pad may be maintained in free flexible contact with the exposed portion of a journal under slight tensile strain and enable it to freely absorb oil taken up by the wicks and to impart the same to the surface of a journal.

2. In a car-axle lubricator, the combination of an absorbent pad or oil-spreader having

pendent wicks, of a pair of spring-supports attached to the ends of said pad and between which it is suspended, said supports being adapted to rest upon the bottom of an axle-box, substantially as described, for maintaining the pad under slight tensile strain in free flexible contact with the exposed surface of an axle-journal.

3. In a car-axle lubricator, the combination, with an oil-spreading pad, of spring-supports which are hinged to the two ends of said pad, substantially as described, whereby said supports may be folded toward each other below the pad for enabling the whole to be readily placed into or removed from an axle-box.

4. In a car-axle lubricator, the combination, with an oil-spreading pad, of two spring-supports attached at their tops to the ends of said pad, and each support having two crossed spring-legs adapted to rest upon the bottom

of an axle-box, and by exerting vertical strains to maintain the pad against the exposed portion of a journal under a light tensile strain, substantially as described.

5. In a car-axle lubricator, the combination, substantially as hereinbefore described, of an oil-spreading pad, two vertical spring-supports attached to the ends of said pad and adapted to rest upon the bottom of an axle-box, and a detachable keeper operating as a loose brace between the lower ends of said supports for maintaining them in a vertical position when in service.

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

THEODORE SAUNDERS.

Witnesses:

GRANVILLE WHITTLESEY,
GEORGE WAKEMAN.