

No. 667,183.

Patented Feb. 5, 1901.

G. J. BINGHAM.
LUBRICATOR.

(Application filed Apr. 27, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

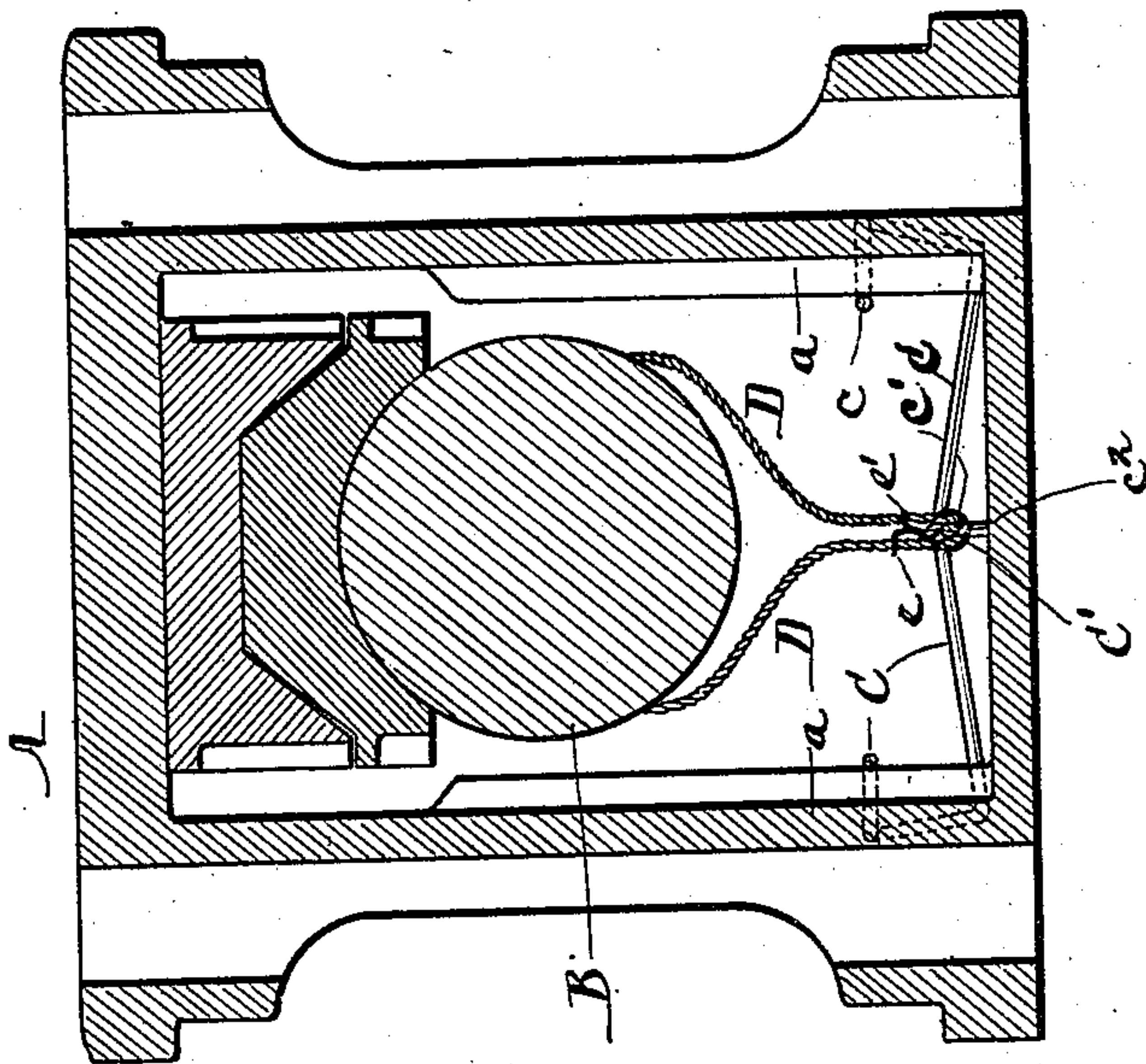
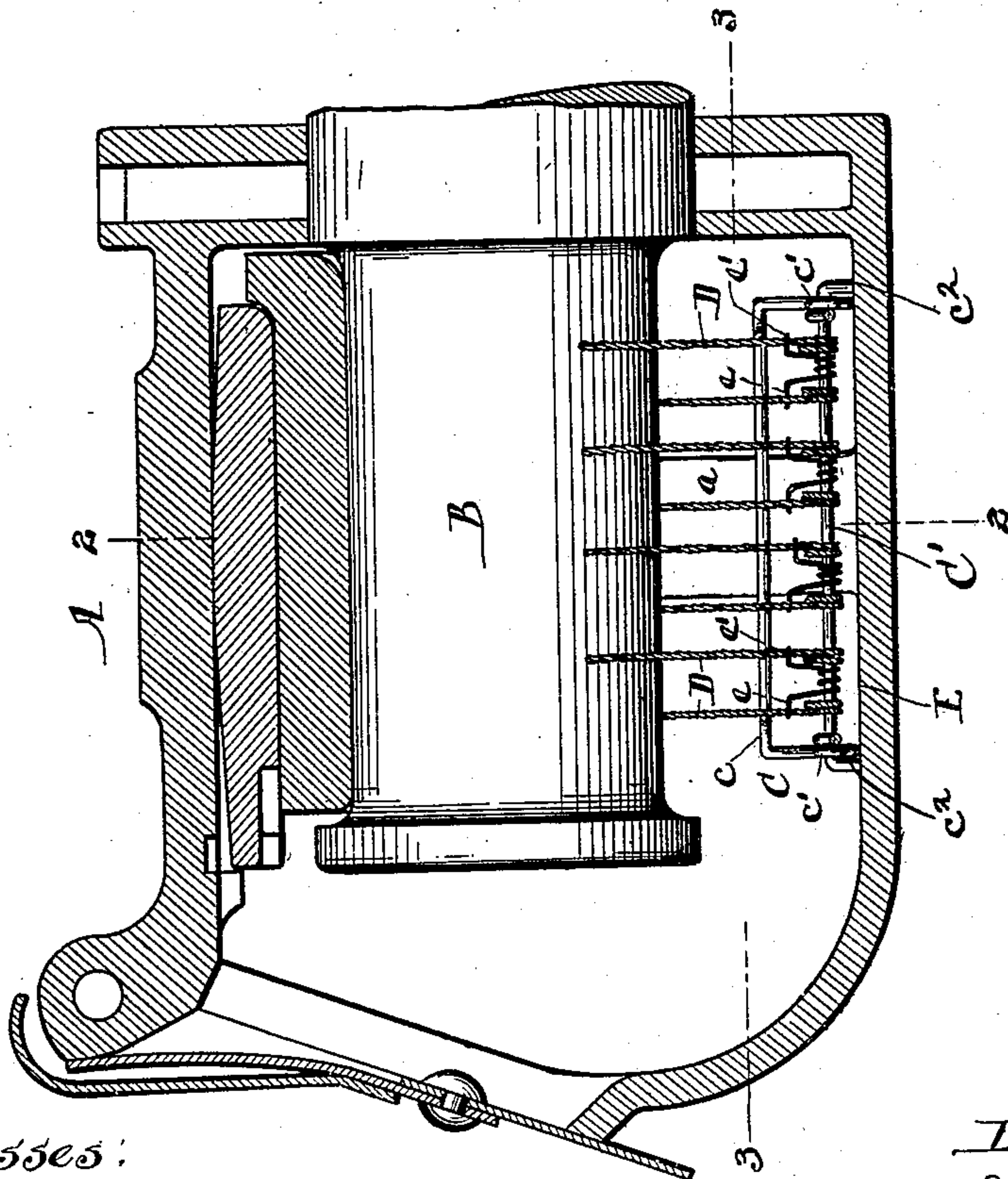


Fig. 1.



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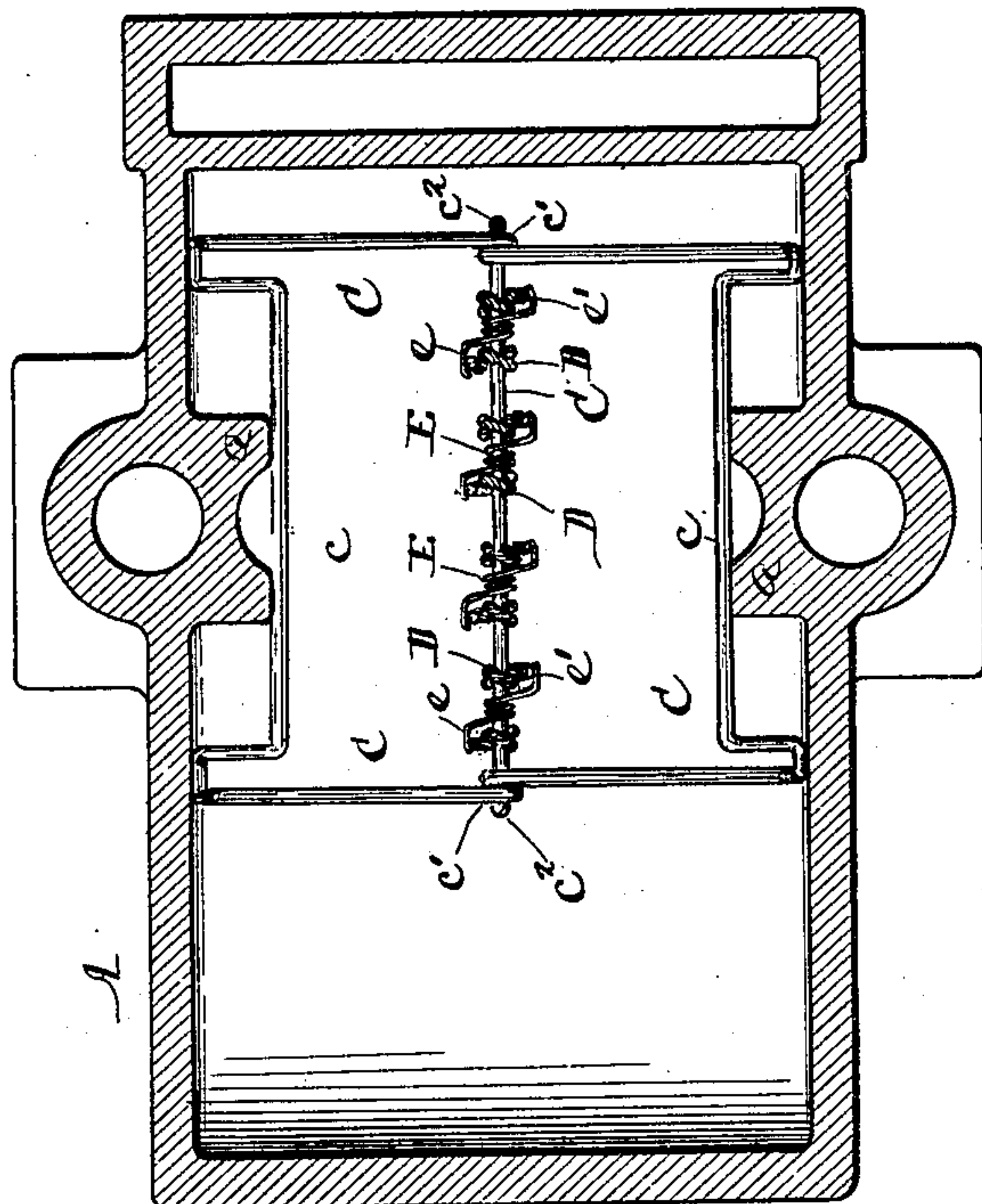
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2 Sheets—Sheet 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE J. BINGHAM, OF CHICAGO, ILLINOIS.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 667,183, dated February 5, 1901.

Application filed April 27, 1899. Serial No. 714,624. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. BINGHAM, a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Lubricators, of which I do declare the following to be a full, clear, and exact description.

The present invention while applicable for use in other situations is more especially designed to provide an improved means for lubricating the journals of car-axles; and the invention consists in the features of improvement hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of this specification.

It has heretofore been proposed to lubricate the journals of car-axles, as well as other journals, by conveying oil thereto from a suitable reservoir by means of strands of copper wire twisted together, said wires having one set of terminals dipping into the oil-reservoir and having their opposite terminals bearing against the surface of the journal. This method of lubrication has proved very effective with journals working in stationary bearings, but so far as I am aware has not been successful as applied to the journals of car-axles, one reason being that the vibration of the journals tends to bend or set the soft copper wires, so that they soon cease to bear against and deliver oil to the surface of the journals. It is necessary that a soft wire be used for delivering the oil to the surface of the journals, because if the wire be hard and sufficiently tempered to act as a spring there is danger of cutting or wearing the surface of the journals. The present invention is designed to overcome the objections incident to prior lubricators of this general class and to provide means whereby the ends of the wire or other soft-metal (preferably copper) surface whereby the oil is delivered to the journal may be held in light contact therewith regardless of the vibrations to which the journal may be subjected.

There are many ways in which the broad features of my invention may be embodied; but in the accompanying drawings I have shown one simple and effective construction of lubricator containing the invention.

Figure 1 is a view in vertical longitudinal section through a car-axle box or journal having my invention applied thereto. Fig. 2 is a view in vertical transverse section on line 2 2 of Fig. 1. Fig. 3 is a view in horizontal section on line 3 3 of Fig. 1.

A designates the car-axle box, which is of ordinary or suitable construction, and B denotes the car-axle journal within said box. The bottom of the box A is shown as of such shape that it will serve as a reservoir for the oil, whereby the journal B will be lubricated. Within the bottom of the box A is set a suitable frame C, adapted to support the wires D, whereby the oil will be delivered to the surface of the journal B. As shown, the frame C is formed of heavy wire, having its side bars *c* preferably offset to span the pillars *a*, that extend inwardly at the sides of the box. The end bars of the frame C are shown as formed with twisted loops *c'*, through which passes the central wire *C'*, the ends *c²* of this wire being shown as bent downwardly to retain the wire in place. Upon the wire *C'* are arranged the several wires D, these wires being preferably formed each of a series of strands of soft copper wire, and the lower end of each of the wire strands D is shown as looped around the wire *C'*, so as to permit the wire strands D to turn thereon. As my invention contemplates that the wire strands D shall have their upper ends held in light contact or bearing with the surface of the journal B by a pressure other than the resiliency of the wire strands D, I prefer to employ some suitable pressure mechanism, preferably a spring or springs, for this purpose. To this end I have shown a series of springs E, coiled about the wire *C'*, the free ends *e* and *e'* of the spring E engaging with the strands D and serving to draw their upper ends normally into light bearing with the surface of the journal B. In the arrangement shown the wire strands D are alternately disposed upon the wire *C'*, so that each coil-spring E serves to hold a pair of wire strands D into bearing with the journal. Manifestly, however, the feature of providing the soft-wire strands D with some auxiliary or supplemental means, such as springs or weights, for holding their free ends into bear-

ing with the journal can be embodied in many different forms without departing from the spirit of the present invention. So, also, it will be understood that the adjacent wire strands D might be formed in a single piece, and for certain classes of work, such as stationary bearings, this arrangement may be of advantage.

From the foregoing description it will be seen that the oil will be taken from the reservoir by the wires D and will be delivered by the free ends of these wires to the revolving surface of the journal B, the springs E serving to hold the ends of the wire strands D into light bearing with the journal.

My invention is particularly advantageous in that it avoids the necessity for the use of cotton-waste or like stuffing for the box, thus overcoming the friction and heating of the boxes incident to the use of such material, which is apt to speedily become foul with dust and cinders. Moreover, I have found in practice that with my invention the lubrication of the car-axle journals can be effected with about five per cent. of the oil now commonly used for such purpose. Hence it will be seen that both for cleanliness and economy the invention marks a decided advance in the art. Moreover, as the oil is delivered to the journals by the light bearing therewith of soft metal, such as copper, the wear upon the journals is materially diminished, and after the wires are adjusted and the journal-box is properly filled with oil a car may run for months without the necessity of reoiling. It will be seen also that the light bearing of the free ends of the wire strands against the surface of the journal will be maintained notwithstanding the usual vibrations of the car, but as well also against any shocks to which journals of this kind are constantly subjected.

By reference to the drawings it will be seen that the lubrication of the journal is effected by means of individual wires D, of copper or like suitable soft metal, and it will be observed also that the springs that bear against these wires and serve to hold their free ends in contact with the journal engage the wires near their pivotal points, so that the contact of the springs with the wires D does not interfere with the capillary flow of the oil along the wires to the journal. In order to insure an effective delivery of the oil to the jour-

nal, it is important that the wires D should be unobstructed above the surface of the oil.

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

1. A lubricator for journals comprising individual wires D of copper or other suitable soft metal having their free ends arranged to bear against the journals to be lubricated and adapted to receive oil from the reservoir, and auxiliary pressure mechanism for forcing said individual wires into light contact with the surface of the journal to be lubricated.

2. A lubricator for journals comprising individual wires of copper or like suitable soft metal having their free ends arranged to bear against the journals to be lubricated, and adapted to receive oil from the reservoir, and springs engaging said individual wires at points below the upper surface of the oil within the reservoir, said springs serving to force the free ends of the wires into light bearing with the journals.

3. A lubricator for journals comprising a series of wires of copper or other suitable soft metal having their upper free ends arranged to bear against the surface of the journal to be lubricated and having their lower ends extending into a reservoir for oil, a shaft or rod whereon the lower ends of said wires are pivotally mounted and pressure mechanism for turning said wires about their pivotal points so as to hold the free ends of the wires into light bearing with the surface of the journal to be lubricated.

4. A lubricator for journals comprising a series of individual copper wires having their upper free ends arranged to engage opposite sides of a journal, a supporting-frame for said wires provided with a rod or shaft whereon said wires are pivotally mounted, and springs adapted to engage said wires adjacent their pivot-points and below the surface of the oil within the reservoir.

5. A lubricator for journals, comprising wires of soft metal, adapted to convey oil to the journal to be lubricated, and an auxiliary pressure mechanism to exert additional force on the lubricating-wires.

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