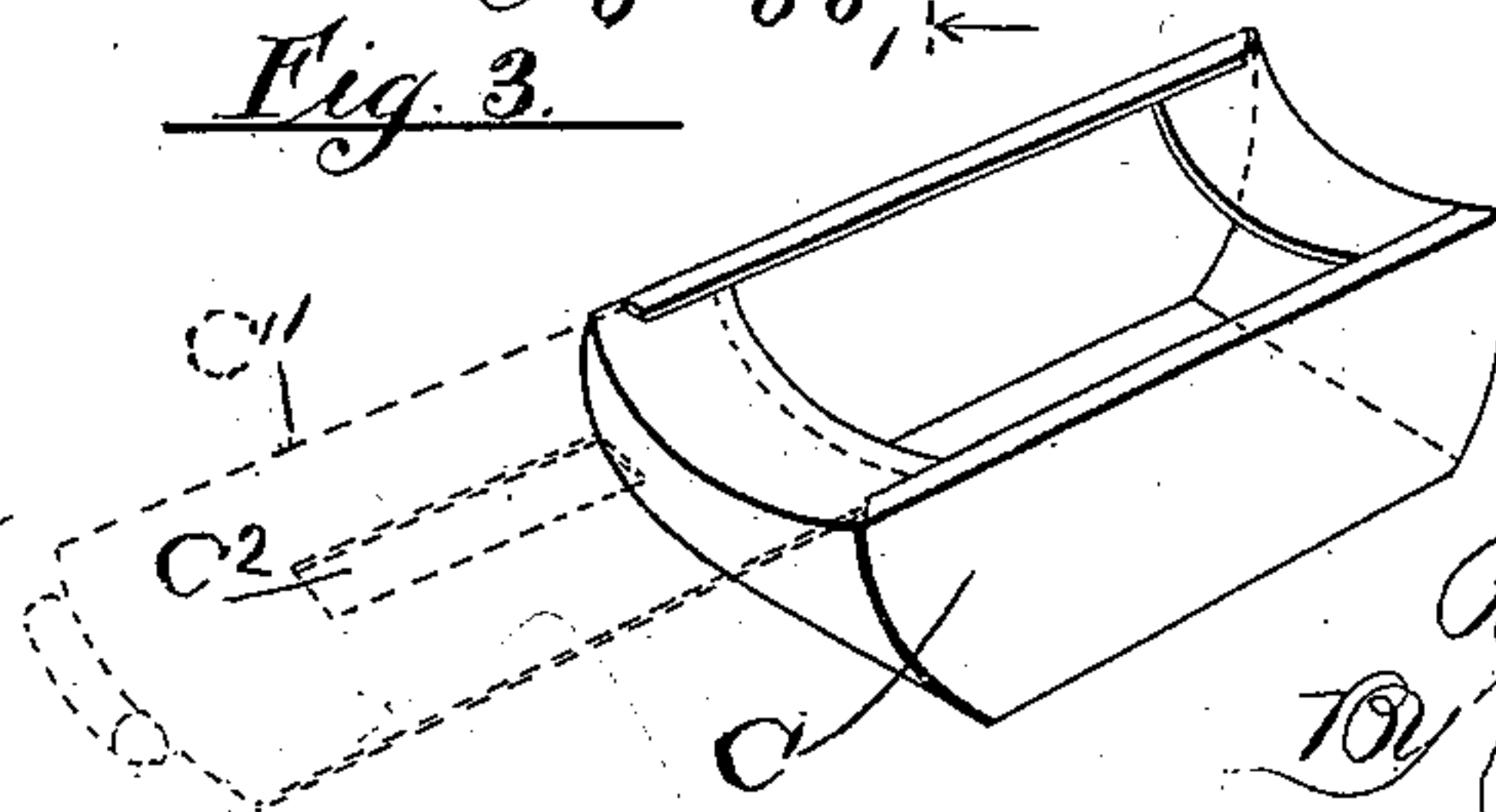
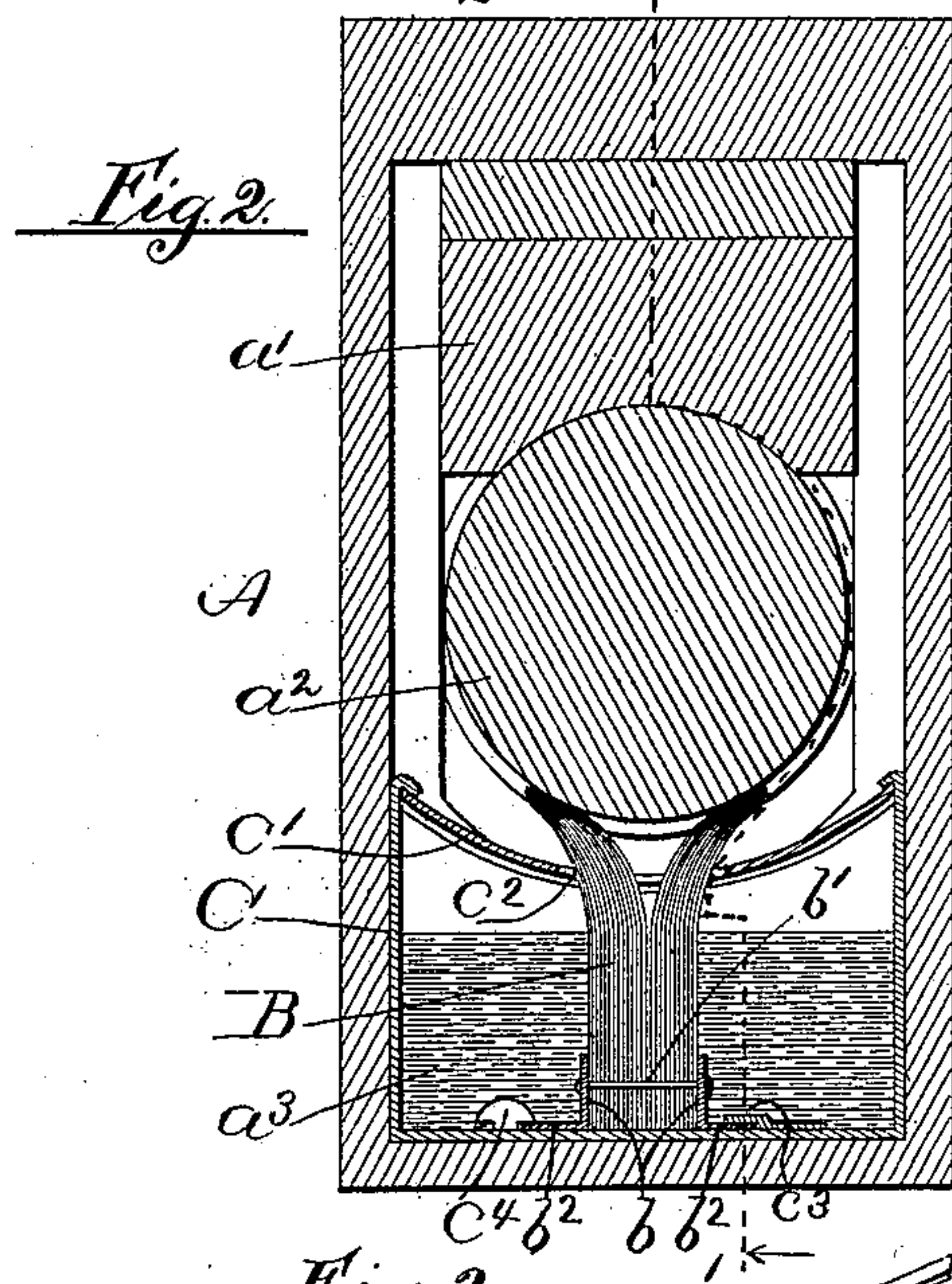
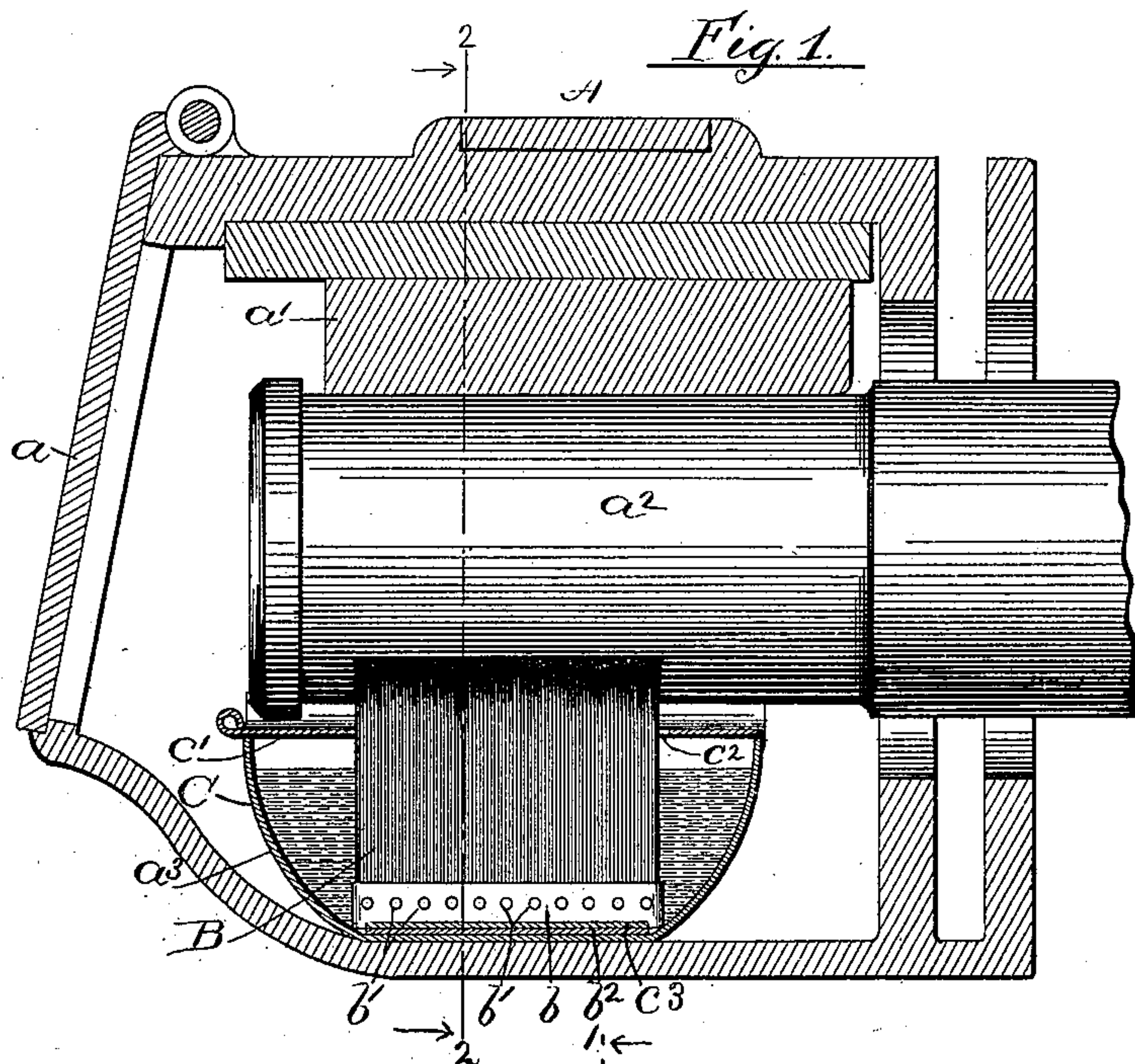


B. M. STEELE.
JOURNAL BOX LUBRICATOR.

(Application filed July 3, 1894.)

(No Model.)

2 Sheets—Sheet 1.



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B. M. STEELE.
JOURNAL BOX LUBRICATOR.

(Application filed July 8, 1894.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 4.

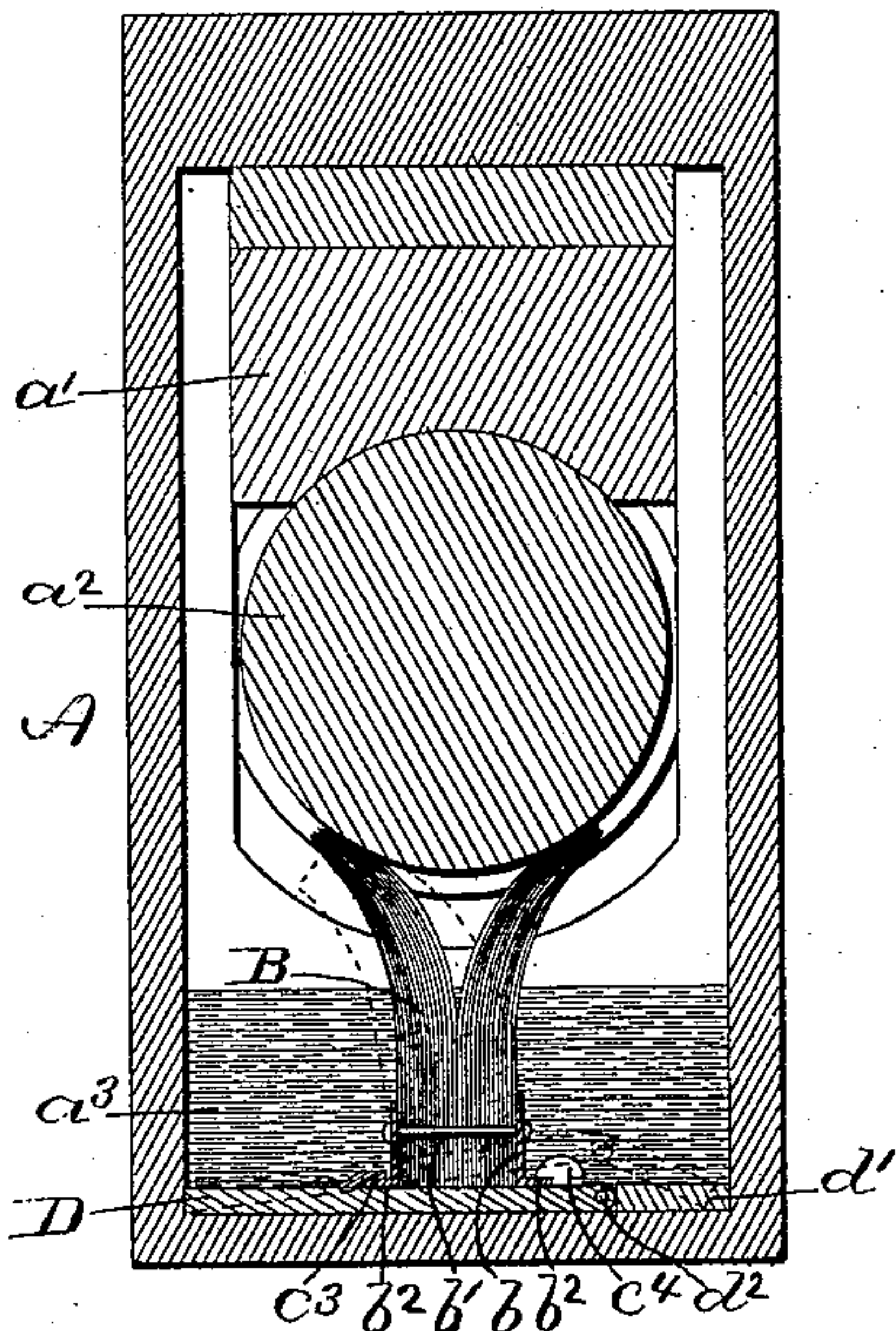


Fig. 5.

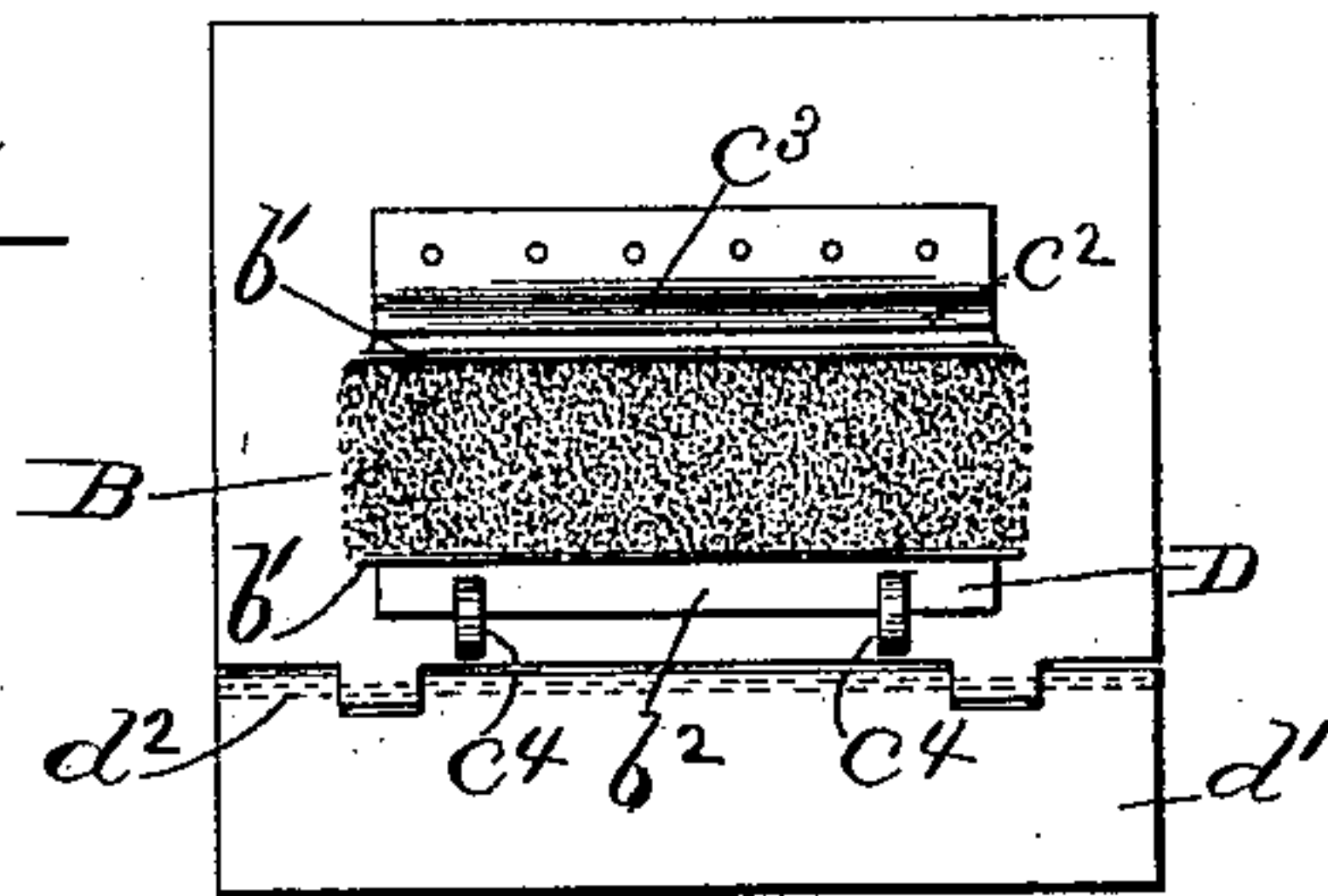
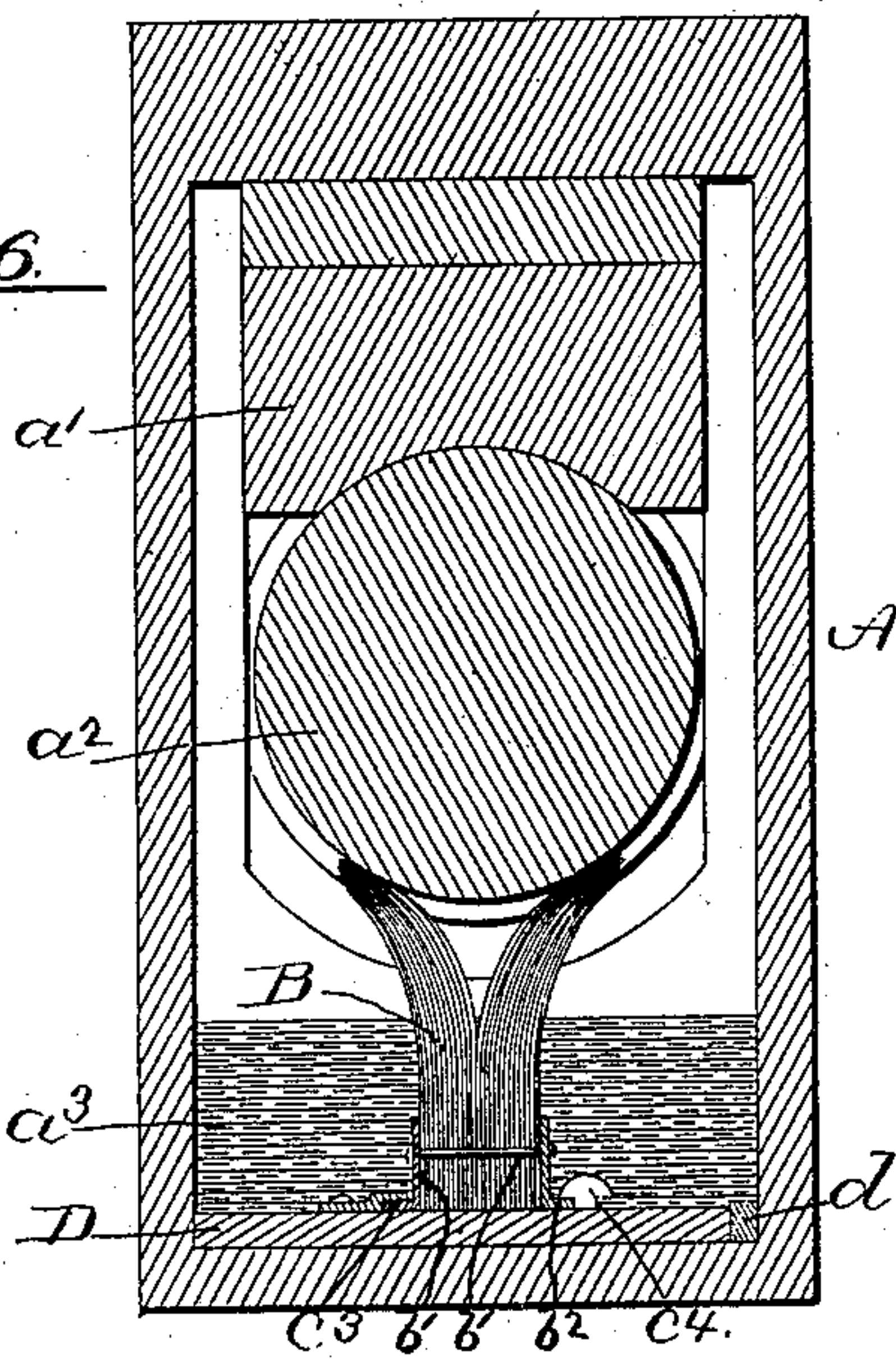


Fig. 6.



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UNITED STATES PATENT OFFICE.

BENJAMIN M. STEELE, OF PEORIA, ILLINOIS.

JOURNAL-BOX LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 616,812, dated December 27, 1898.

Application filed July 3, 1894. Serial No. 516,415. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN M. STEELE, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Journal-Box Lubricators, of which the following is a specification.

The invention hereinafter described relates to improvements in journal-box lubricators and is shown as embodied in a form suitable for use as a car-axle lubricator.

Prior to my invention, in so far as known to me, there has not been any automatic lubricators of the class which feed from below upward in which the lubricator was formed, as is my improvement, of flexible bristles or filaments of some length fixed or pressed together at their lower ends only, whereby the bristles above their lower fixed ends would be free to adapt themselves to journals of different diameters, to journals having annular flanges thereon or of different forms in other respects, without having any grooves or slits cut or otherwise formed in the lubricator, and, further, be free to automatically adjust their upper ends in the best practical working manner to the journal and to slightly vibrate among each other, whereby their oil-feeding capacity is increased and by means of which they will to a great extent prevent dirt, cinders, or sediment, except the heavier kind, from settling downwardly among the bristles and obstructing the free passage of the oil upwardly to the journal, and such heavier portions of such sediment will by their own gravity work downwardly between and outwardly through the bristles and settle to the bottom of the oil-supply, while the lighter portions will be discharged outwardly over the upper ends of the bristles and drop therefrom or run down the outside of the brush feeder or lubricator and also settle to the bottom of the oil-supply.

The object of my invention is to provide a lubricator embodying the improvements over the prior art above specified, whereby the lubrication of the journal may be rendered more effective, the lasting capacity of the lubricator increased, the quantity of oil used be diminished to a minimum, and a lubricator provided which experience has shown will operate on the axle-journal of a locomotive

in daily use on a railroad nearly a year without appreciable wear of said lubricator.

The different novel constructions and combinations which have been evolved in carrying out the objects of my invention, the collective and separate operations of the parts comprised in the invention, the new mode of operation, and new and useful results arising therefrom are hereinafter described, and the new constructions and combinations made the subject-matter of claims hereto appended.

In the accompanying drawings all my improvements are shown as constructed and embodied in the best way now known to me. Obviously, however, while still within the purview of my invention some or all of the parts may differ in their construction, in their organization, and in their disposition for coaction from what I have shown in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a car-axle box or journal-box and side elevation of the end of the axle and of the oil-feeder or lubricant-feeder in line 1 1 in Fig. 2; Fig. 2, a sectional elevation in the line 2 2 in Fig. 1; Fig. 3, a perspective of the auxiliary box shown at Figs. 1 and 2 for carrying the oil and oil-feeder; Fig. 4, a sectional elevation in same plane as Fig. 2, but showing different means for mounting the oil-feeder from that shown at Fig. 2; Fig. 5, a top plan of the oil-feeder and the plate on which it is mounted, as shown at Fig. 4; Fig. 6, a sectional elevation in same plane as Fig. 2, showing another modification of the means used for mounting the oil-feeder in the journal-box.

The drawings show a journal-box A, with lid *a* and bearing-brass *a'*, of one of the many ordinary forms of journal-box to which my improvement is applicable. The journal or axle *a²* is also mounted therein in the ordinary manner. At Figs. 1 and 2 the oil-feeder or brush B is shown as mounted in an auxiliary oil-box C, which is removably seated in the journal-box A. The auxiliary box C is provided with a slidable removable lid *c'*, with an upper side concave in its cross-section and with a slot or aperture *c²* for the passage outwardly therethrough of the upper part of the oil-feeder or brush B. The oil-feeder B is in the form of a brush and is

formed of bristles or stiff hairs, which will support themselves in an upright position, which are elastic or flexible and will quickly spring back to their normal position when bent therefrom, and which are not permeable by the lubricant or oil a^3 . A preferable way of securing the bristles to form the brush is by clamping them at their lower ends between plates b by means of through-bolts b' . The plates or clamps b have outwardly-projecting sides or flanges b^2 . The lower ends of the bristles are preferably seared with a hot iron to unite them and prevent the withdrawal of them separately from the brush. The bristles may be otherwise united to each other and may be otherwise clamped collectively together, if preferred, the only object of this part of my invention being to fix and hold the bristles firmly together at their lower ends and so as to leave all their main body portions and upper portions free to flex, vibrate, and otherwise operate, as hereinafter described. A preferred way of mounting the brush or oil-feeder B in the box C is by sliding one of the flanges b^2 beneath a guard-plate c^3 , which is fixed to the bottom of the box C, and securing the other flange b^2 by turn-buttons c^4 , as shown at Fig. 2.

The auxiliary oil-box C is preferably held in place by seating it closely against the sides of the journal-box, as shown at Fig. 2, and the bristles projecting upwardly from its bottom and through the slot c^2 preferably do not touch the sides of said slot, and hence support themselves and are free to have vibratory movements imparted to them by their resiliency and by the action of the rotary axle, the lower part of the perimeter of which rests somewhat below the upper ends of the bristles, which, by the action of the axle in backing and going forwardly, will be separated and in operation remain in about the normal positions shown at same figure.

The oil carried in the auxiliary box C is by the brush carried upwardly to the journal or axle a^2 by capillary attraction and by the vibratory movements of the bristles in reference to each other, imparted to the bristles by the frictional contact of the rotating axle therewith and by their own resiliency. The sunken upper surface of the lid c' will retain the dirt or debris of any kind falling thereon, and such objectionable material falling among the bristles can and will, the heavier portions of it, work downwardly and outwardly between the separate bristles by its own gravity and settle to the bottom of the oil; but the lighter and greater portion of such dirt, sediment, or debris will be wiped from the axle or journal by the brush and will fall over the upper outer ends of the bristles or pass down their outer sides to the oil-supply and settle to the bottom thereof. I have found by the practical use of this device that the oil in passing upwardly between the bristles will be fed to the surface of the car-journal entirely free from sediment of any kind, and hence en-

tirely free from all such sediment as accumulates on the upper surface of the ordinary "waste" used below the car-journal, and also on the upper surface of felt oil-feeders, and adhering to the journal is carried around by its rotations and not only rapidly wears away the brasses or bearings, but causes heating, and which sediment will also be fed to instead of kept away from the journal by a brush located in a substantially horizontal position. I have also found by practical experience that it will operate well when the oil-box C is full or about full to its lid, and also until the oil is lowered in the box to about the tops of the clamp-plates b . The oil can be supplied to the oil-box C before or after it is seated in the journal-box. The lid c' should be removed from the oil-box C to remove the oil-box from the journal-box or to replace it therein.

The oil-box C may be dispensed with and the brush feeder or lubricator be held in place by mounting it on a base-plate D, (see Fig. 6,) in the same manner that it is mounted on the bottom of the auxiliary box C, and which will be understood more certainly by the use of the same reference-letters to the same parts at Fig. 6 as at Figs. 1 and 2. The plate D, is preferably fixed in place by the wooden wedge d , forced into place between the plate D and the side of the journal-box. The plate D if made of metal one-half inch or thereabout in thickness, will by its own gravity be held in position, or it may be held in position by hinging the plate D to a smaller plate d' , as shown at Figs. 4 and 5, the hinge-pin d^2 being shown by dot lines at Fig. 5. In placing the plates D and d' in the bottom of the journal-box they are turned at an angle to each other, as shown by dot lines at Fig. 4, until their sides contact the bottom of the journal-box, and then forced down until they lie in the same plane on the bottom of the journal-box, and are there held by the thrust of their opposite sides against the opposite sides of the journal-box.

It will be evident that the brush oil-feeder or lubricator may be constructed in different ways and may be mounted in the journal-box in different ways to have the same function or produce the same results as when constructed and mounted in the journal-box as hereinbefore described, and that in all such cases it will have the same new mode of operation—that is, it will raise the oil or feed it upwardly from the source of supply by means of capillary attraction and by means of the vibratory motions of the separate bristles and by means of the limited end long reciprocating movements of their upper portions above the plates b with reference to each other, and which are permitted by and arise mainly from the changes in their curvature in operation, and will by means of its long ends formed of separate flexible interacting bristles adapt itself to journals of different diameters, different forms, and with annular ribs or flanges thereon, be free to automatically adjust the

upper ends of the bristles to the journal in the best working manner and to slightly vibrate among each other to increase their oil-feeding capacity and their capacity to discharge a greater portion of the dirt and other sediment outwardly over their ends.

I desire it understood that I consider my invention as not limited to the construction of the brush, nor to the manner shown of mounting it in the journal-box, both of which are novel, to the best of my knowledge, and both of which I claim; but I consider the scope of my invention as covering the bristle, brush feeder, or lubricator mounted or fixed at its lower end or base in the journal-box, arranged to operate beneath the axle, all of its upper or main portion without side support to permit of the movements hereinbefore described and formed of self-lubricating elastic bristles or other material having same mode of operation with same results.

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

1. In a journal-box lubricator, and in combination, a journal-box, an axle, a brush oil-feeder located below the axle, and base-fastenings for mounting and fixing said brush at its lower end only, in the lower part of the journal-box, and with its upper end in contact with the axle, said brush being composed of bristles which are self-supporting above said base-fastenings at their lower ends, substantially as described.

2. In a journal-box lubricator, and in combination substantially as hereinbefore described, a journal-box, an axle, a base-plate, and a brush feeder located below said axle with its upper end portion in contact with said axle and its lower end part in the lower part of the journal-box, said brush being formed of bristles, secured in the journal-box and held in brush form by clamp-plates at its lower end part only, which clamp-plates are fixed to the base-plate.

3. In a journal-box lubricator, and in com-

bination substantially as hereinbefore described, a journal-box, an axle, an auxiliary oil-box, a brush or oil-feeder located below the axle, and formed of bristles which are self-supporting above their lower ends or base-fastenings, and means for securing said brush at its lower end only to the bottom of said auxiliary box and holding the brush with the upper end of the bristles in contact with the axle.

4. In a journal-box lubricator, and in combination substantially as hereinbefore described, a journal-box, an axle, an auxiliary oil-box having a slidable, slotted lid concave in its cross-section, a brush or oil-feeder located below the axle and formed of bristles which are self-supporting above their lower ends or base-fastenings, and base-fastenings for securing their lower ends only, to the bottom of said auxiliary oil-box and holding them in position with their upper ends in contact with the axle.

5. In a journal-box lubricator and in combination substantially as hereinbefore described, a journal-box, an axle, a brush or oil-feeder formed of bristles, a clamping-plate secured to each side and the lower end of said brush and provided with flanges, and a base-plate having a ledge overlapping one of said flanges, and turn-buttons for overlapping its other side and fixing the brush or oil-feeder in an upright position.

6. In a journal-box lubricator, and in combination substantially as hereinbefore described, a journal-box, an axle, a brush or oil-feeder formed of bristles, a base-plate formed in two parts hinged to each other, and means for securing the lower end of the brush to one of the parts of which the base-plate is composed.

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

BENJAMIN M. STEELE.

Witnesses:

GEO. W. LYON,

J. M. WELLS.