

(No Model.)

2 Sheets—Sheet 1.

C. A. WESTERVELT & J. P. WALTERS.
CAR AXLE LUBRICATOR.

No. 532,618.

Patented Jan. 15, 1895.

Fig. 1.

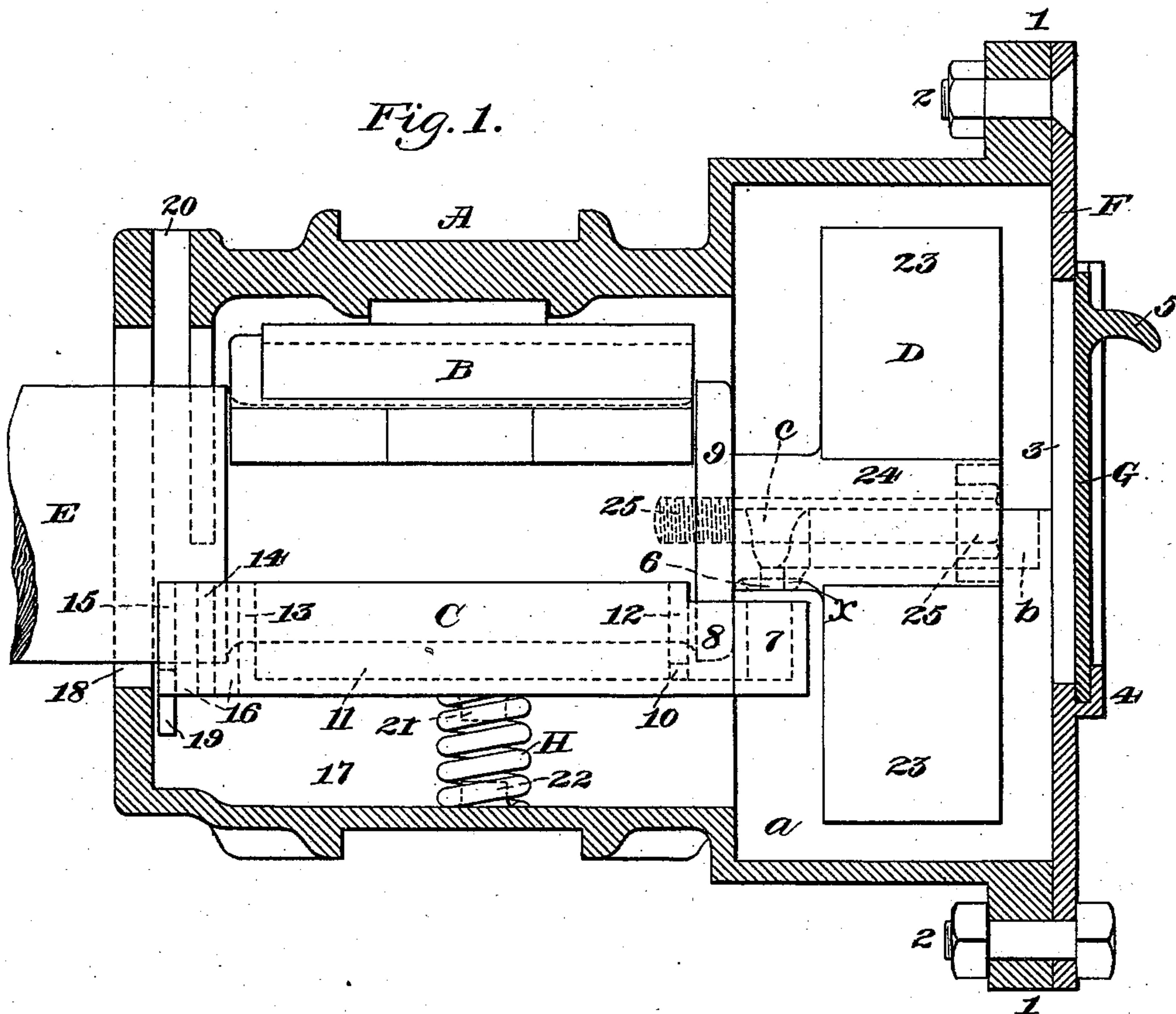
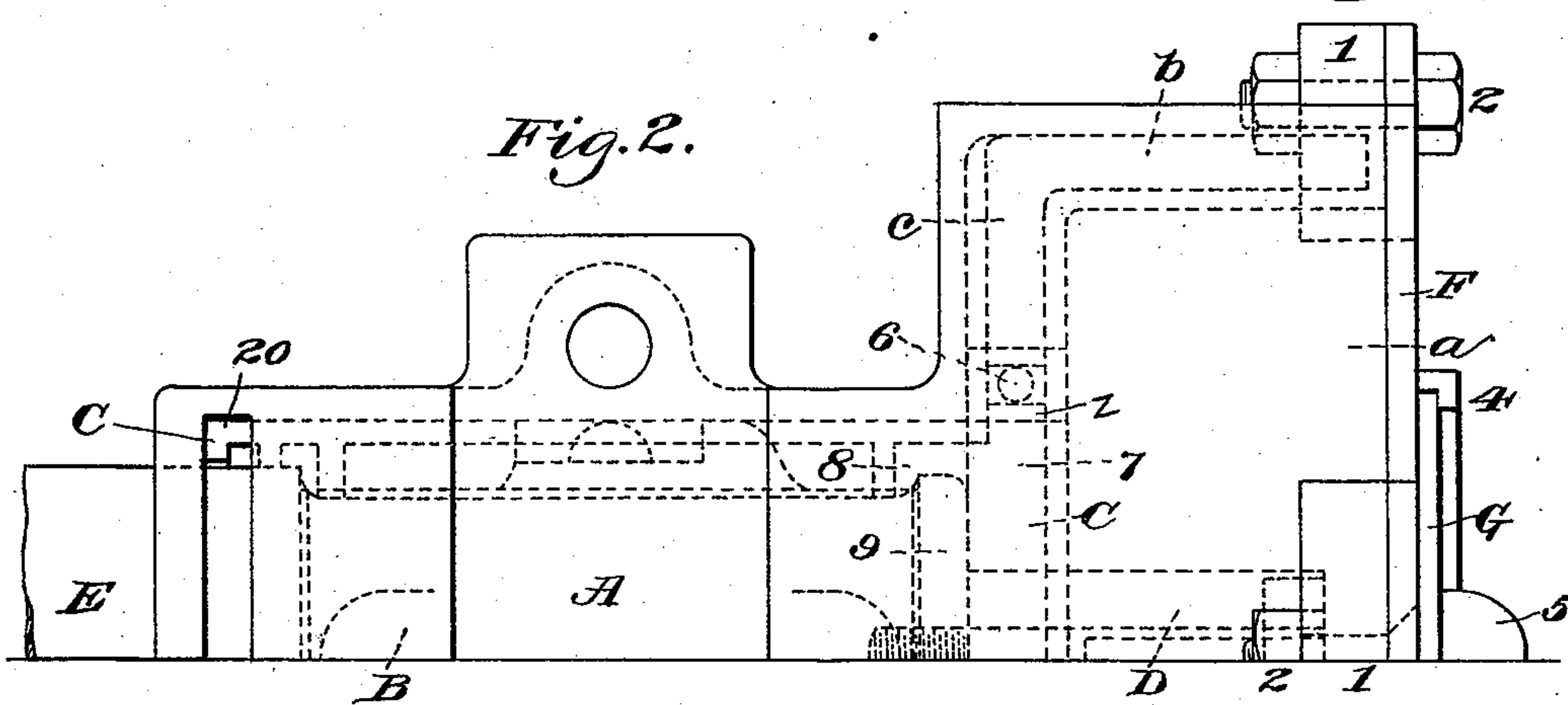


Fig. 2.



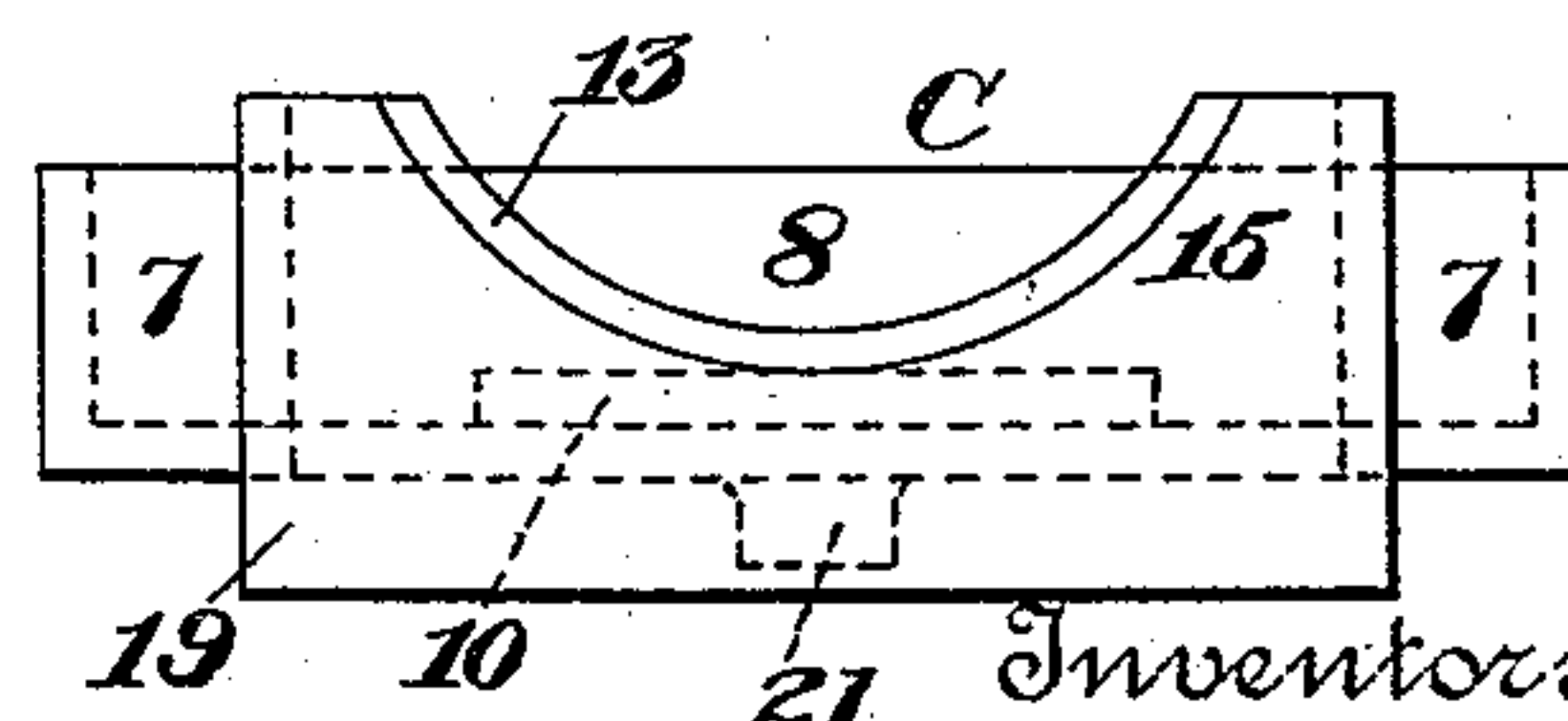
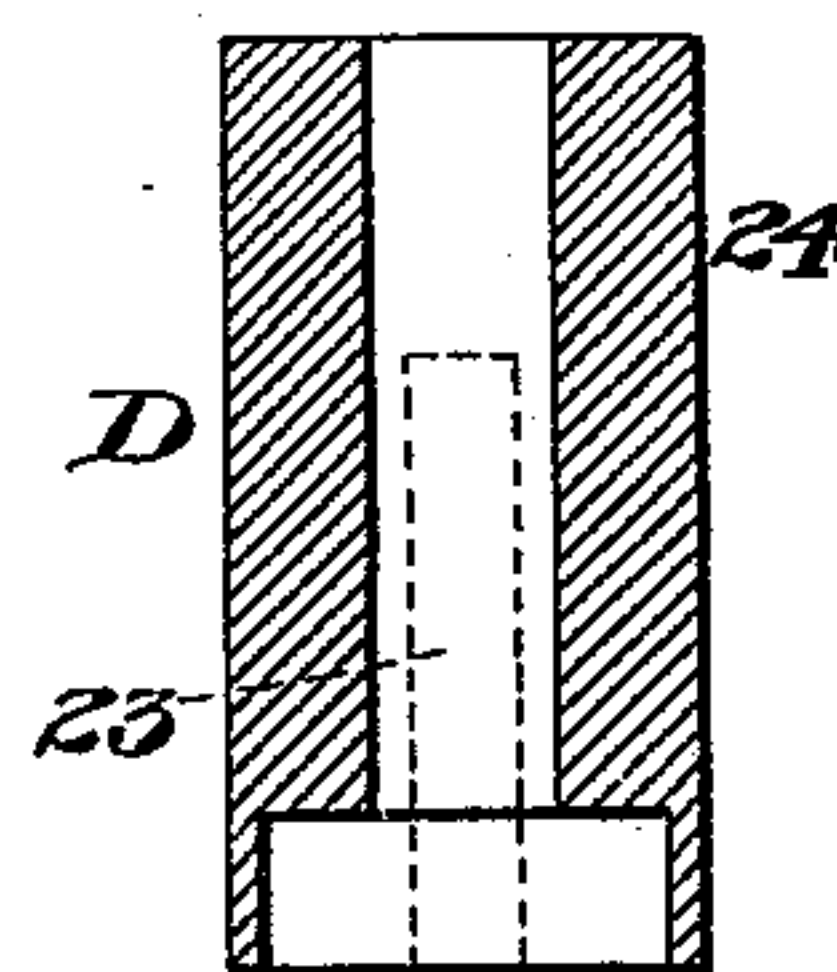
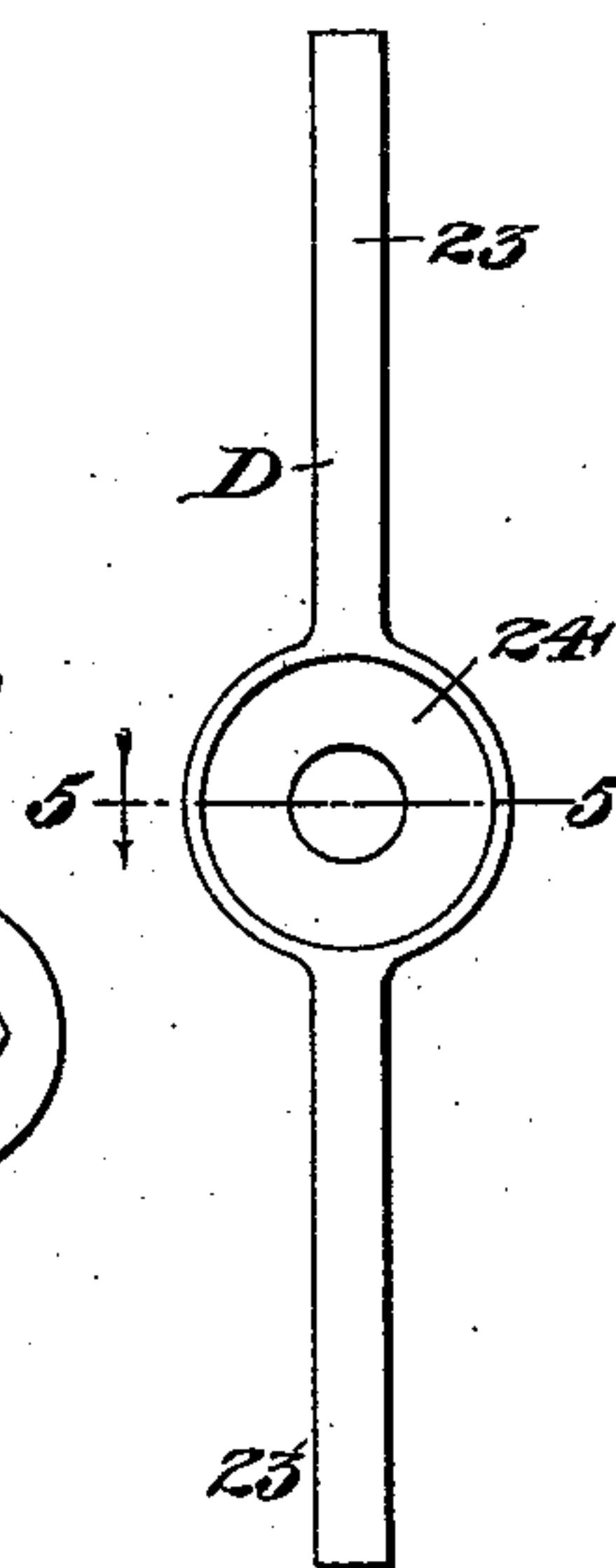
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2 Sheets—Sheet 2.

No. 532,618.

Patented Jan. 15, 1895.



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UNITED STATES PATENT OFFICE.

CHARLES A. WESTERVELT AND JAMES P. WALTERS, OF UHRICHVILLE,
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CAR-AXLE LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 532,618, dated January 15, 1895.

Application filed August 20, 1894. Serial No. 520,842. (No model.)

To all whom it may concern:

Be it known that we, CHARLES A. WESTERVELT and JAMES P. WALTERS, citizens of the United States of America, and residents of Uhrichsville, Tuscarawas county, in the State of Ohio, have invented a new and useful Improvement in Car-Axle Lubricators, of which the following is a specification.

In common with our improvements in centrifugal and centripetal lubricators set forth in two previous specifications forming part of applications for United States Letters Patent filed respectively the 4th day of April, 1894, and the 20th day of July, 1894, and serially numbered respectively 506,339 and 518,143, this invention relates to means for automatically and economically oiling rotary axles and the like by utilizing centrifugal and centripetal forces.

The present invention consists in an improved car-axle lubricator, constructed in part on the same principle as the lubricators set forth in said previous specifications, together with certain novel features of construction, as hereinafter set forth and claimed.

The objects of this invention are to embody our system of centrifugal and centripetal lubrication in car-axle boxes; to insure the effective application of the oil to the bottom of the axle spindle; to wholly dispense with fibrous material within the box; and to render the parts of the improved box as few and simple as practicable.

Two sheets of drawings accompany this specification as part thereof.

On Sheet 1, Figure 1 represents a vertical longitudinal section through the box proper or shell of a car-axle box embodying the present improvement, showing the axle, brass, under brass or "cellar," and cellar-supporting spring in elevation; and Fig. 2 is a half top-view of the improved box. On Sheet 2, Fig. 3 is an end view of the improved box. Fig. 4 is an elevation of the oil-elevator detached. Fig. 5 is a cross-section on the line 5-5 Fig. 4; and Figs. 6, 7 and 8 are detail views of said cellar of the improved box detached.

Like letters and numbers refer to like parts in all the figures.

A may represent the box proper or its shell as a whole, which may be composed of cast-

ings of iron or other suitable metal in any approved way; B, its customary brass, which, forming no part of the present invention, may be of any ordinary or improved construction; and C an oil-holding "cellar" corresponding generally in its lubricating functions with the single brass set forth in the last of our previous specifications aforesaid.

In common with the lubricators set forth in said previous specifications, the present lubricator comprises a revolving oil-elevator D carried by the axle E. Said oil-elevator is inclosed by a housing, preferably integral with the shell, forming at bottom an oil-chamber *a*, and provided at its sides with open-topped oil-pockets, *b*, into which the oil is directly thrown by said oil-elevator, and from which it flows, through centripetal passages *c*, into contact with the surfaces to be lubricated.

In the present lubricator the body of the shell A is conveniently a single casting, and its outer or front end, shown at the right in Figs. 1 and 2 and in the foreground in Fig. 3, is formed by a flat end-plate F, provided, in common with said body of the shell, with lugs 1 through which screw-bolts 2 extend to attach said end-plate oil-tight. Said end-plate is provided with an inlet-opening 3, and with a three-sided frame 4 for a vertically sliding lid G, having a suitable handle 5 by which to elevate it to open the box for the introduction of oil into said chamber *a*. The side-pockets *b* and centripetal passages *c* are formed at midheight within the one-part body of the shell A, and said centripetal passages are closed at their inner ends *z* and provided at bottom with drip-holes 6 which extend through depending projections *x* for concentrating the drip; and said projections *x* overhang lateral projections 7, formed on the cellar C to receive the drip of oil from said centripetal passages. Said lateral projections 7 are hollow at top, and communicate with an open-topped end-chamber 8 of said cellar C, into which the end flange or button 9 of the axle-spindle dips, as in Figs. 1 and 3, and from which the oil flows through an orifice 10 into the open-topped main chamber 11 of the cellar. The respective ends of said chamber 11 are formed by a pair of bridges 12 and 13. The first of these bridges, marked 12, is provided with

said orifice 10; and the two bridges are notched to fit the reduced axle-spindle. Behind the rear bridge 13 and parallel therewith an oil-arresting bar 14 notched to contact with the unreduced portion of the axle E, and an end-bar 15 notched to clear the axle are separated from each other and from said bridge 13 by spaces 16. These spaces extend through the cellar from top to bottom, and serve to return to the chamber *a*, by way of the recess 17 within the body of the shell A, the oil which would otherwise tend to escape at the rear opening 18 of the box; and a depending projection 19, integral with said end-bar 15, masks said opening 18 at bottom, as in Fig. 1. Said opening 18 will be closed at top by a suitable dust-guard, for which a pocket 20, Figs. 1 and 2, is provided.

A central spiral spring H, embracing studs 21 and 22 formed respectively on the bottom of the cellar C and on the floor of said recess 17, supports the cellar C, and presses said bridges 12 and 13 and said oil-arresting bar 14 into contact with the axle E; while the revolutions of the oil-elevator D and the agitation of the oil within the cellar C insure the ample lubrication of the spindle as long as the car may be in motion, provided there is enough oil in the box to be acted on by said oil-elevator.

For the purposes of the invention the oil-elevator D may be of any approved construction. It is preferably constructed, as shown, with a pair of diametrically opposite blades 23 projecting from an axially drilled hub 24, through which a tap-bolt 25 is screwed into the end of the axle-spindle to attach the oil-elevator.

What is known as a centrifugal wheel, as set forth in the first of said previous specifications, may for example be substituted for the form of oil-elevator shown at D as above. The rear openings 18 may be closed at bottom as well as at top by a suitable dust-guard; and other like modifications will suggest themselves to those skilled in the art.

We do not claim herein, broadly, in combination with an oil-elevator revolving with the axle, a housing for said oil-elevator having open-topped oil-pockets within it at its sides on a level with the axle into which the oil is thrown centrifugally by said oil-elevator, and horizontal or substantially horizontal passages leading from such side-pockets through which the oil flows centripetally to the axle, as this combination is claimed in our specification forming part of another application for patent filed the 20th day of July, 1894, Serial No. 518,143.

Having thus described the said improvement, we claim as our invention and desire to patent under this specification—

1. An improved car-axle lubricator comprising an oil-chamber at the end of the axle-

spindle, open-topped oil-pockets at the sides of said chamber, an oil-elevator revolving with the axle and discharging the oil centrifugally into said pockets direct, centripetal passages leading from such side-pockets, and an open-topped "cellar" having lateral projections which receive the oil from said passages, an end-chamber in communication therewith into which the bottom of the axle-spindle dips, a main chamber beneath the axle-spindle into which the oil flows from said end-chamber, and a space behind said main-chamber extending vertically through the cellar, substantially as hereinbefore specified.

2. In a car-axle lubricator, the combination of an oil-elevator revolving with the axle and discharging the oil centrifugally, a housing for said oil-elevator having open-topped pockets within it at its sides into which the oil is directly thrown by said oil-elevator, centripetal oil-passages leading from said pockets to vertical drip-holes formed at bottom within depending projections, and an open-topped "cellar," immediately beneath the axle-spindle, having lateral projections which are overhung by said depending projections, substantially as hereinbefore specified.

3. The combination in a car-axle lubricator of an oil-elevator revolving with the axle and discharging the oil centrifugally, a housing for said oil-elevator having open-topped pockets within it at its sides into which the oil is directly thrown by said oil-elevator, centripetal oil-passages leading from said pockets, an open-topped cellar receiving the oil from said centripetal passages and constructed with bridges notched to fit the reduced axle-spindle and with an oil-arresting bar fitted to the unreduced portion of the axle, and a spring which supports said cellar and presses said bridges and said oil-arresting bar into contact with the axle, substantially as hereinbefore specified.

4. In combination with an oil-elevator revolving with a car-axle, and a housing for said oil-elevator having pockets at its sides into which the oil is thrown centrifugally by said oil-elevator and centripetal oil-passages leading from said pockets, an open-topped cellar receiving the oil from said centripetal passages and applying the same to the axle-spindle, such cellar being constructed with bridges notched to fit the reduced axle-spindle and with an oil-arresting bar fitted to the unreduced portion of the axle and separated from the rear bridge by a space extending vertically through the cellar, substantially as hereinbefore specified.

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