

(No Model.)

J. W. FOWLER.

CAR AXLE BOX.

No. 335,691.

Patented Feb. 9, 1886.

Fig. 1.

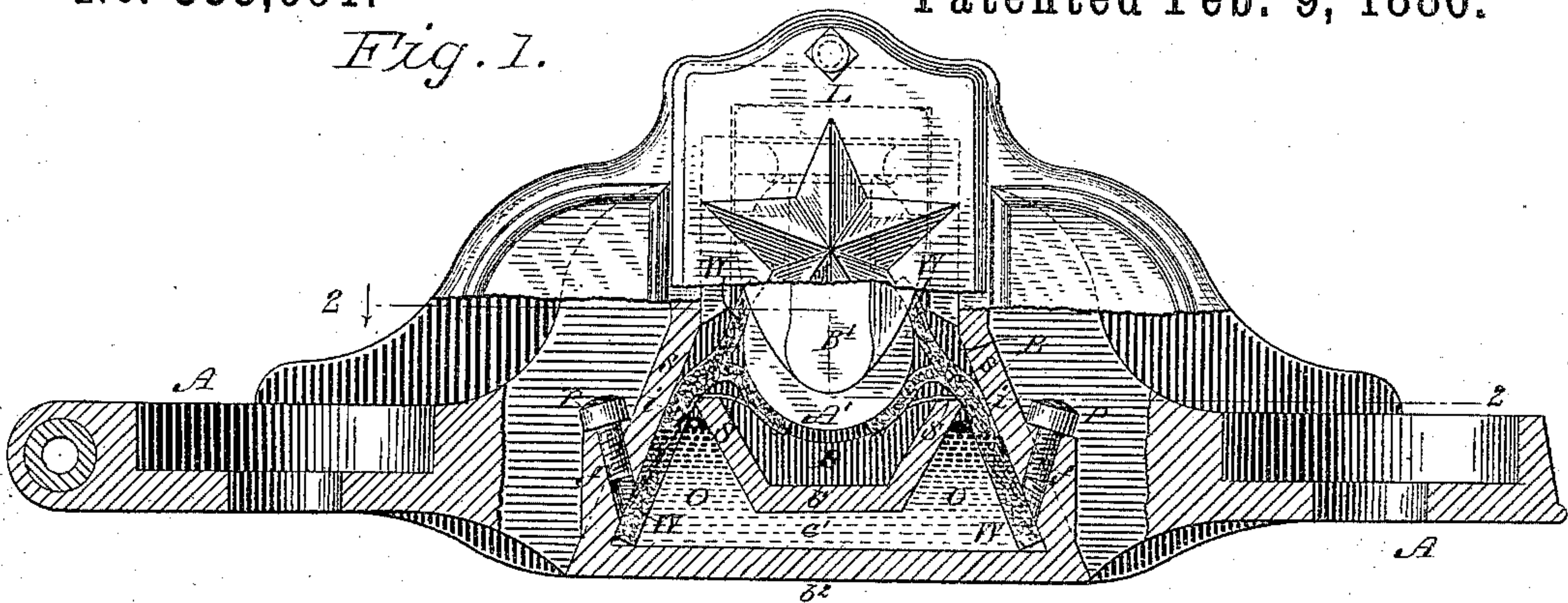


Fig. 2.

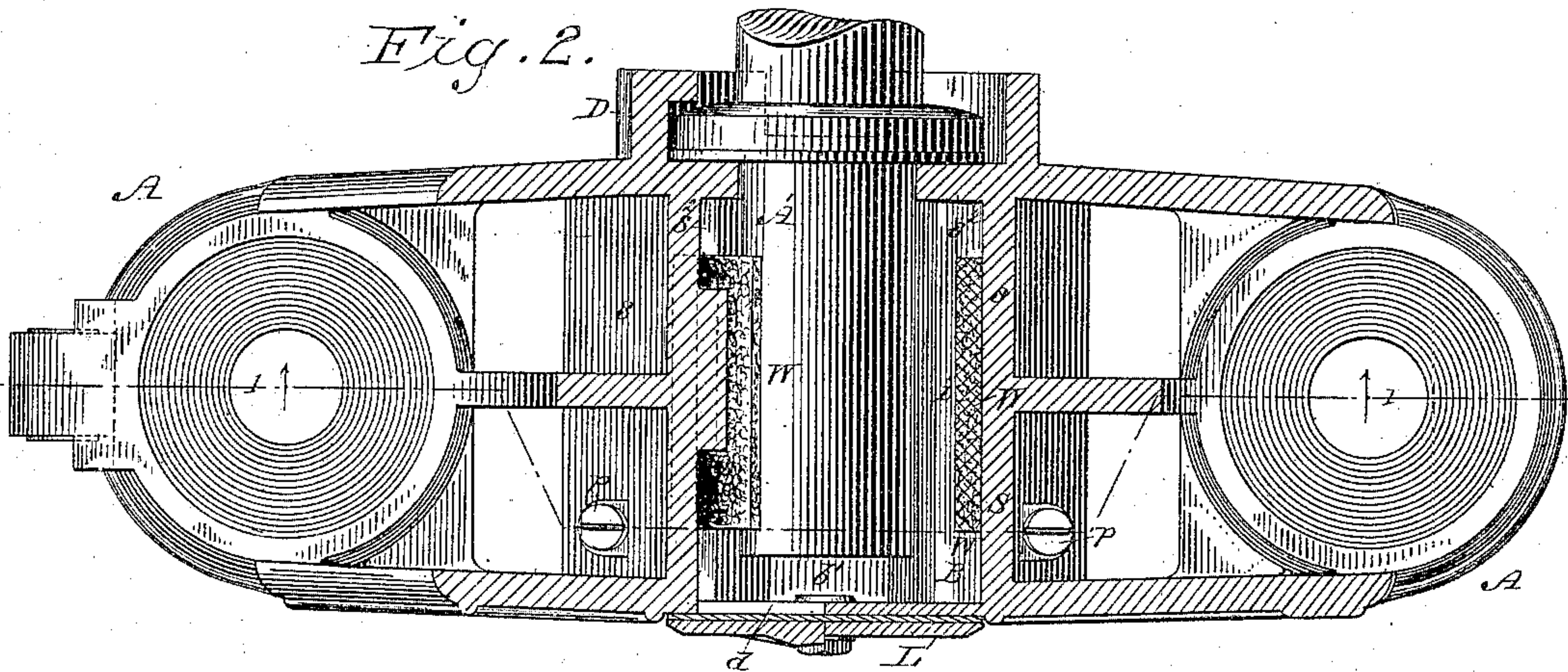


Fig. 3.

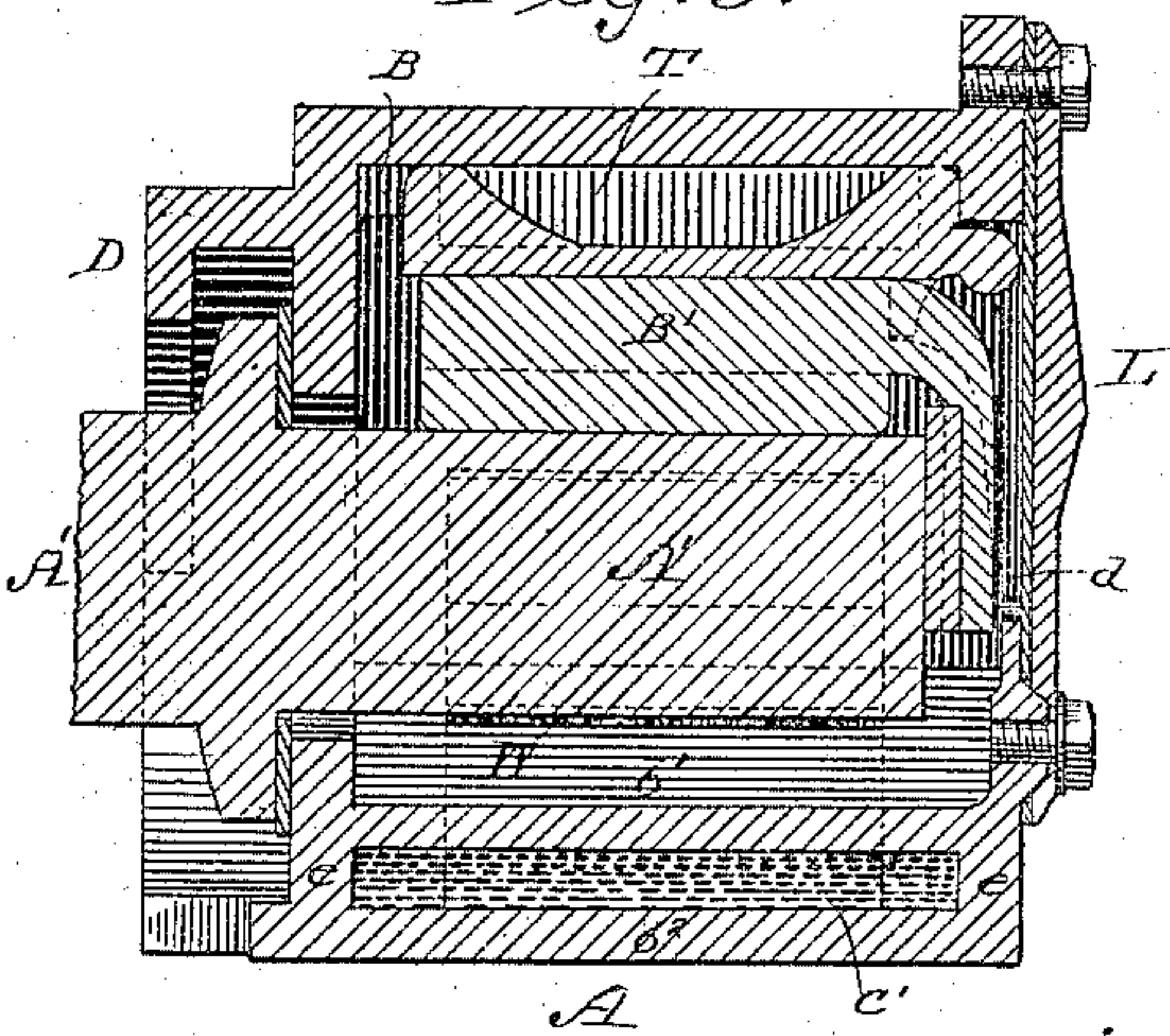


Fig. 4.

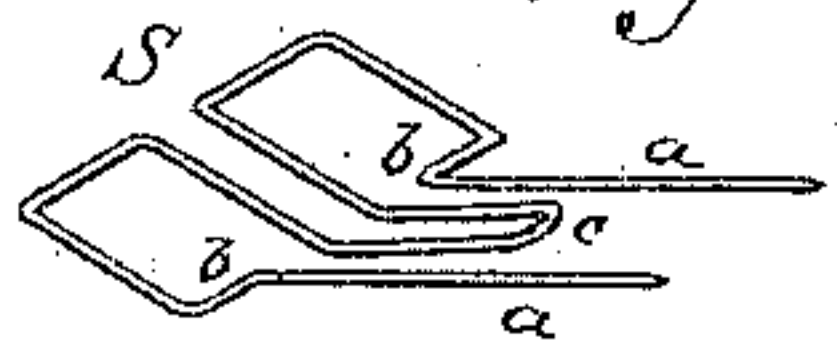


Fig. 5.

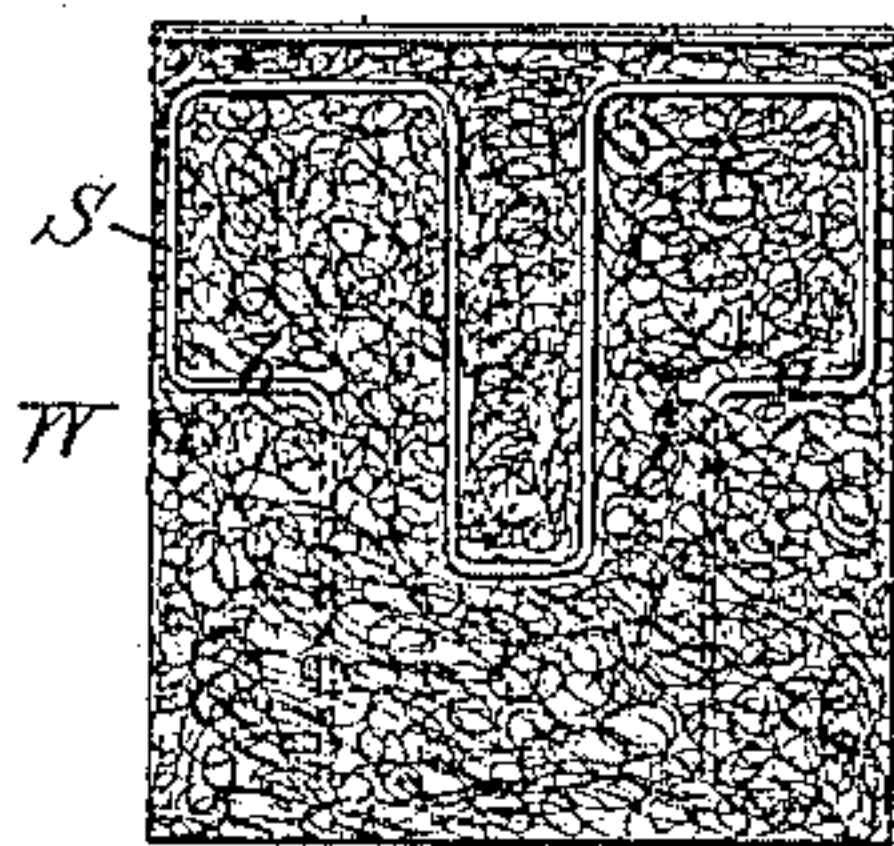


Fig. 7.

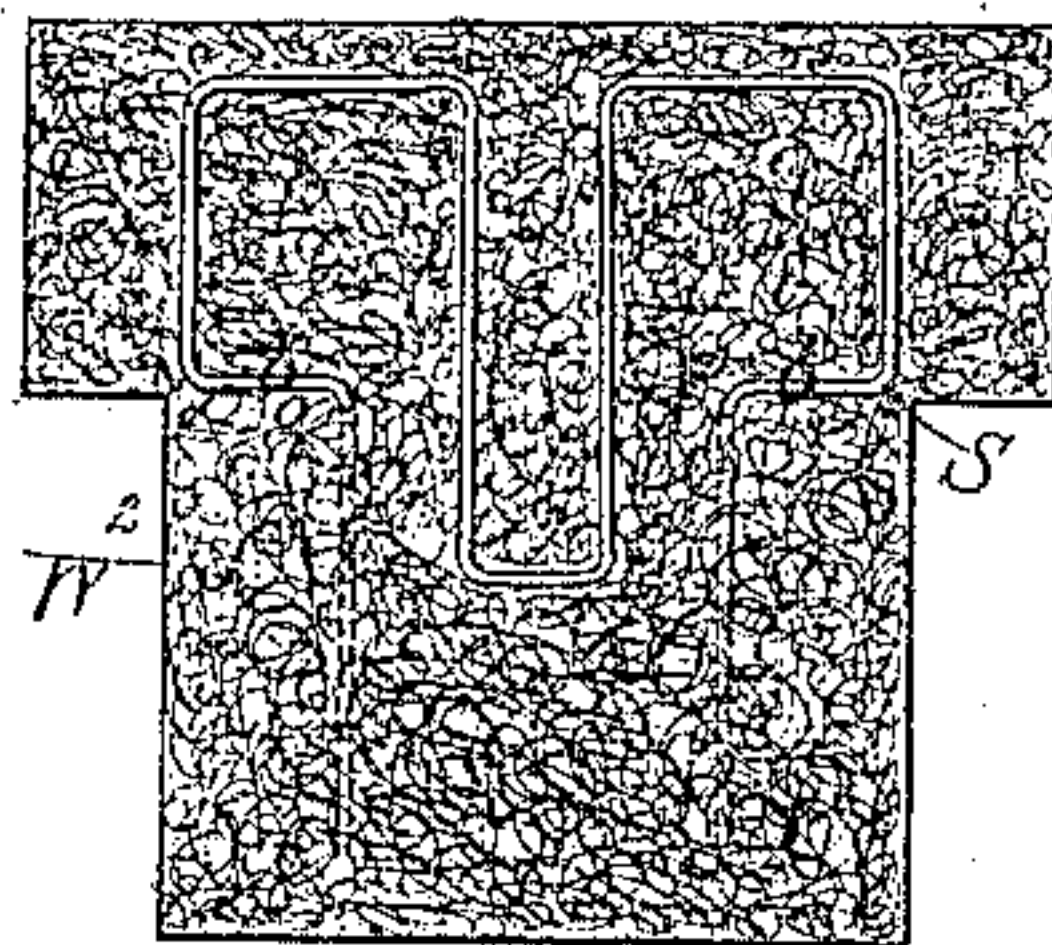


Fig. 6.

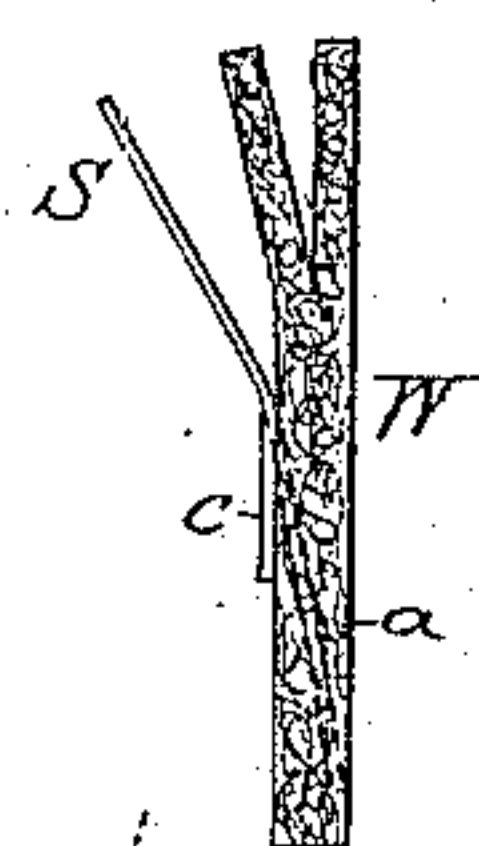
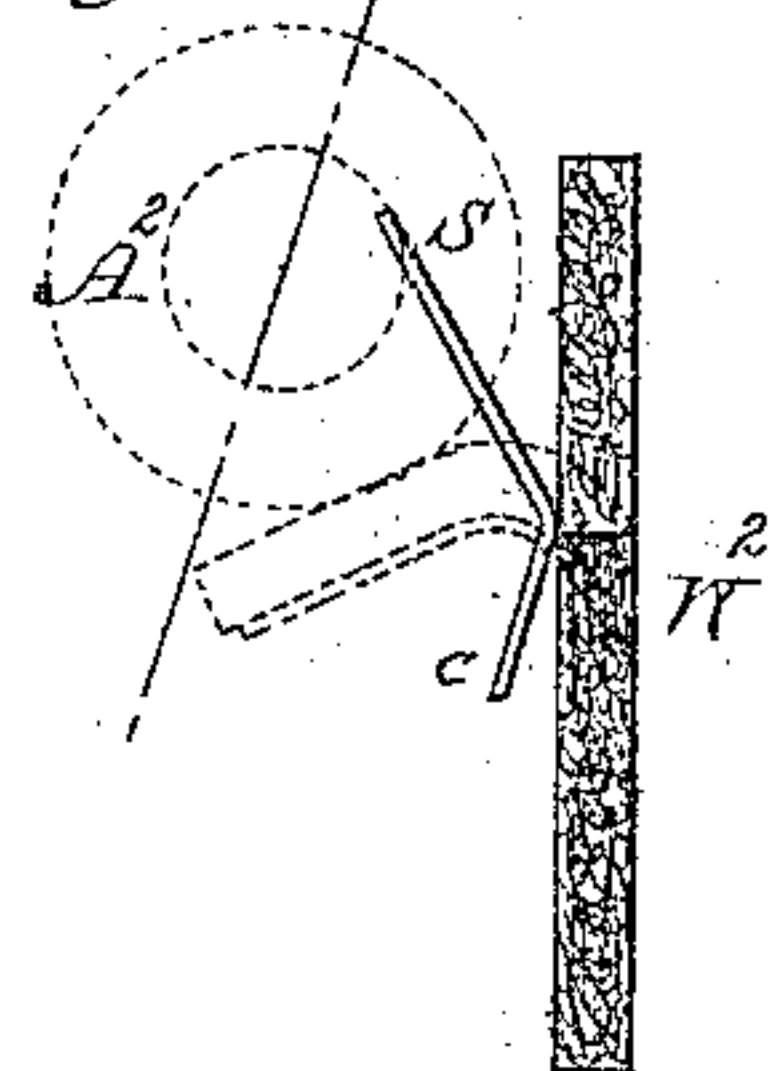


Fig. 8.



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CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 335,691, dated February 9, 1886.

Application filed October 20, 1885. Serial No. 180,444. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. FOWLER, a citizen of the United States, residing at Brooklyn, in the State of New York, have invented a new and useful Improvement in Car-Axle Lubricators, of which the following is a specification.

This invention relates to that class of car-axle lubricators which involve peculiar constructions of the axle-box, as well as means for feeding the lubricant to the axle-journal within the box by capillary attraction.

It relates more particularly to the oil-feed lubricating devices of combined axle-boxes and pedestals for street-cars; and it consists in certain novel features of construction and combinations of parts embodied in such a combined axle-box and pedestal, as hereinafter set forth and claimed.

The objects of the respective parts of the present invention are, first, to accommodate a sufficient supply of oil to last a long while, (through the life of a set of car-wheels, for example,) by utilizing for this purpose space not heretofore utilized in a combined axle-box and pedestal, and so as to avoid using unnecessarily large mold-cores in forming such chambers; second, to provide for readily filling the oil-chamber or oil-chambers from outside of the closed box without liability to cause an overflow through the inner ports which communicate with the box-chamber; third, to insure an abundant and uniform supply of oil to the axle-spindle by wicks in a peculiar manner; fourth, to provide at once for preventing the defacement of the axle-boxes and wheels by escaping oil, and for facilitating the insertion of oil-feeding wicks of thick felt, fitting said inner ports so tightly as to preclude escape of oil by splashing; fifth, to provide at once for so inserting such wicks and for rendering them highly effective as oil-feeders; sixth, to support from beneath that portion of each wick in contact with the lower half of the periphery of the axle-spindle so as to preserve such contact by peculiar means; seventh, to provide at once for such support, and for the prevention of any displacement of the wicks, and, eighth, to effect such support and prevention or double support by a supporter for each wick, composed of a single wire suitably bent, as hereinafter more fully set forth.

A sheet of drawings accompanies this specification as part thereof.

Figure 1 of these drawings is a face view of a combined axle-box and pedestal for street-cars, partly in vertical section in parallel planes, showing the oil-chambers with the filling, oil-feeding and wick-supporting devices of my improved car-axle lubricator. Fig. 2 is a plan view of the same, partly in section, on the line 2 2, Fig. 1. Fig. 3 represents a vertical transverse section in a central plane. Fig. 4 is a perspective view of one of the wick-supporters detached. Figs. 5 and 6 are respectively face and edge views of one of the wicks detached with its supporter in position thereon, and Figs. 7 and 8 are respectively face and edge views of a wick with supporter attached suitable for a different style of axle-spindle from that shown in Figs. 1 to 3.

Like letters of reference indicate corresponding parts in the several figures.

The main casting A of the combined axle-box and pedestal is provided with a central box proper or box-chamber, B, having an imperforate bottom, *b'*, which is preferably of the angular concave form represented. (See Fig. 1.) The central portion of this bottom is so located with reference to the normal plane of the bottom of the axle-spindle A' as to permit the axle to be inclined in inserting the brass B' and top piece, T, in the upper part of the box. Below the lowermost plane of the brass the side walls, *s*, of the box-chamber flare outwardly, forming lateral enlargements of the chamber above the upper edges of said bottom *b'*, and connected with the latter by horizontal elevated shelves *s'*, in which long "inner ports," *i*, are formed close to said side walls, as best seen at the right in Fig. 2. The side walls, *s*, are extended downward and outward to the lower edge of said main casting, in which plane they are united by an imperforate sub-bottom, *b''*, which, together with said box-bottom *b'*, side walls, *s*, and shelves *s'*, with imperforate end walls, *e*, Fig. 3, form a pair of capacious oil-chambers, O O, projecting laterally beyond the sides of the box-chamber B, with a communication, *c'*, between them, beneath said box-bottom *b'*, and communicating with said box-chamber by means of said inner ports, *i*. For supplying said oil-chambers with the lubricating fluid, and preventing overflow

through said inner ports into the box-chamber, filling-ports f are formed in said side walls with their upper ends at a suitable height above said sub-bottom b^2 and below said shelves s^2 , and provided with suitable stoppers or plugs, p , which may be set-screws, as shown, as the ports do not have to be opened often. For feeding the oil to the periphery of the axle-spindle A' , a pair of wicks, W , Figs. 1, 2, 3, 5, and 6, or W^2 , Figs. 7 and 8, are cut from suitable thick felt and inserted through said inner ports, i , into said oil-chambers O , the upper end of each wick being suitably applied to said periphery; and in order to obtain the utmost freedom and uniformity of feed said wicks W are split at their said upper ends, as shown in Figs. 1 and 6, so that the comparatively soft inner portion of the felt forms the surface of contact, and the upper end of each wick affords an upwardly and a downwardly extending terminal portion, so as to feed the oil equally in opposite directions of travel, notwithstanding the reversal of the motion of the axle-spindle. In one direction of travel the upper half of the left-hand wick end, as seen in Fig. 1, and the lower half of the right-hand one, would be most effective, because they project in the direction of the rotation of the axle-spindle. In the opposite direction of travel the upper half of the right and the lower half of the left wick end would be equally effective for a like reason. The lower end of each wick is cut so as to tightly fill the port through which it is inserted, so as to prevent escape therethrough by splashing, and thus to keep the box-chamber free from free oil, which otherwise escapes onto and defaces the adjacent car-wheel or the "front" of the box, or both.

The insertion of the tightly-fitted wicks is provided for by the outward trend of the side walls, s , of the oil-chambers, permitting the insertion of the wicks outwardly and unbent. The support of the upper end of the wicks in proper contact with the axle-spindle is provided for by the same means, the wicks being simply cut to the proper length, so that their lower ends abut against the sub-bottom b^2 at its junctions with said side walls.

For holding up that portion of the upper end of each wick in contact with the lower half of the periphery of the axle-spindle, (the "lower half" of the upper end of each wick W , for example,) so as to preserve such contact against the displacing effect of jolting, each wick is provided with a supporter, S , as best seen in Figs. 4 to 8, readily attached thereto by a pair of pointed legs or pins, a , forced lengthwise into the felt until stopped by lateral bends b , which insure the proper projection of the effective upper end of the supporter. (Seen at the left in Fig. 4.) A central rebent portion, c , of each supporter serves at once to adapt it to support the wick end properly at mid-width, and by the insertion of its lower end, with the lower end of the wick, through the inner port in contact with

the wick, it aids to hold the wick against the side walls, so as to preclude any bending of the wick, which might otherwise permit its displacement endwise. Each supporter S , as above described, is composed of a single piece of spring-wire suitably bent, and, if need be, tempered. Its main upper portion, and the upper ends of said central portion, c , are bent about in line with said lateral bends b , and it is flexed downward across the edge of the adjacent shelf s^2 , as seen in Fig. 1 and in dotted lines in Fig. 8, after the wick W or W^2 is inserted. So flexed, the respective ends of each supporter press upward toward the axle and outward toward the flaring side wall, so as to support the wick as aforesaid; and the particular shape above described is not considered essential to this effect. Said wick W^2 , Figs. 7 and 8, is simply cut to suit a different axle-spindle, A^2 , Fig. 8, and its upper end is not split. Other like modifications or adaptations will suggest themselves to those skilled in the manufacture and use of such lubricators. The wicks W or W^2 and wick-supporters S are inserted and manipulated as aforesaid, through the customary opening or doorway, d , in the front of the main casting A . This is done before and in the act of applying the box to the axle-spindle A' , followed by the insertion of the brass B' and top piece, T , after which said doorway is closed by a packed lid, L . The oil-chambers O may now be filled, with both of the plugs p removed; and this is accomplished with facility and safety by pouring the oil into one filling-port until it overflows from the opposite chamber through its filling-port. These ports are then reclosed, and the lubricator will ordinarily require no further attention whatever, until it is otherwise necessary to open the box because of the failure of the wheels or some other part.

An approved dust-shield, D , with proper appurtenances, excludes dust from the inner end of the box-chamber. This and other features of the main casting, and other parts not hereinbefore specified, are or may be of ordinary construction, and form no part of my present invention; and it will be understood that the axle-spindle brass and top piece or spindle and saddle may be of any preferred kind.

I am aware that it is not broadly new to provide a car-axle box with oil-chambers beneath an imperforate bottom and at the sides of the box, either or both together, with wicks for feeding the oil from said chambers through suitable ports to the axle by capillary attraction, and also that lateral openings giving access to such chambers are old, broadly considered. All these features are set forth in the expired patent of G. G. Hunt, No. 41,221, dated January 12, 1864, and are therefore not claimed herein. My downwardly flaring and extended side walls and horizontal shelves form the outer and uppermost boundaries of laterally-projecting oil-chambers, which occupy heretofore-unutilized space in a com-

bined axle box and pedestal, and are at the same time adapted to be formed by cores no larger than are required for the capacity of the chambers. My said filling-ports serve also not only to give convenient access to the oil-chambers, but to preclude overflow into the central chamber or box proper. In combination with said flaring side walls and horizontal shelves, the latter provided with ports adjacent to said side walls, a pair of wicks of thick felt are admitted obliquely with facility, and their lower ends do not have to be bent, and may consequently be tightly fitted to said ports, so as to preclude escape therethrough by splashing; and with the upper ends of the wicks in contact with the periphery of the axle-spindle, below the brass or saddle, the oil is fed to the axle in the most direct manner.

I am also aware that wick-supporters of other forms than mine, hereinbefore set forth, have been made of spring-wire in one piece, and do not, therefore, broadly claim this feature.

Having thus described my said improvement in car-axle lubricators, I claim as my invention, and desire to patent under this specification—

1. A combined axle box and pedestal for street-cars, having a central box-chamber, and constructed with an imperforate bottom for said chamber, downwardly flaring and extended side walls connected with said bottom by horizontal shelves, laterally-projecting oil-chambers formed in part by said extended side walls and inner ports in said shelves, substantially as herein specified, for the purpose set forth.

2. In a combined axle box and pedestal for street-cars, having a central box-chamber, the combination of an imperforate box-bottom and sub-bottom, downwardly flaring and extended side walls, both provided with filling-ports, and horizontal shelves above the upper level of said filling-ports provided with inner ports, substantially as herein specified, for the purpose set forth.

3. In combination with an axle-spindle, its saddle, and its box, a pair of laterally-arranged oil-chambers external to the box-chamber, inner ports communicating therewith, and a pair of wicks extending through said ports and having their upper ends split and distended to embrace the sides of said spindle below said saddle, substantially as herein specified, for the purposes set forth.

4. In combination with an axle-spindle, its saddle, and its box, a pair of laterally-arranged oil-chambers external to the box-chamber, formed in part by an imperforate box-bottom

and downwardly flaring and extended side walls, horizontal shelves connecting said bottom and side walls, and having ports therein adjacent to the latter, and a pair of wicks having unbent lower ends tightly fitted to said ports and extending obliquely therethrough, substantially as herein specified, for the purposes set forth.

5. In combination with an axle-spindle, its saddle, and its box, a pair of laterally-arranged oil-chambers external to the box-chamber, formed in part by downwardly flaring and extended side walls, horizontal shelves having ports therein adjacent to said flaring side walls, and a pair of wicks having unbent lower ends extending obliquely downward through said ports, in contact with said side walls, to the bottom of said oil-chambers, the upper ends of the wicks resting against the periphery of said spindle below said saddle, substantially as herein specified, for the purposes set forth.

6. In combination with an axle-spindle, its saddle, its box, an oil-chamber external to said box, and a horizontal shelf having an inner port therein, a wick extending through said port and having an effective portion of its upper end in contact with the lower half of the periphery of said spindle, and an elastic wick-supporter having a pair of pins inserted in the wick, stops at the upper ends of said pins, and a main upper portion flexed over the inner edge of said shelf and pressing upward against said effective portion of the wick, substantially as herein specified, for the purposes set forth.

7. In combination with an axle-spindle, its saddle, its box, a laterally-arranged oil-chamber external to the box-chamber, formed in part by an outwardly-inclined side wall, a shelf having a port therein adjacent to said inclined side wall, a wick having an unbent lower end extending through said port, in contact with said side wall, to the bottom of said oil-chamber, and an elastic supporter attached to said wick, flexed over the inner edge of said shelf, and having a downwardly-projecting portion which holds said lower end of the wick against said side wall, substantially as herein specified, for the purposes set forth.

8. The within-described wick-supporter, having attaching-pins, stop-bends, and a central downwardly-projecting portion, the whole formed by a single piece of spring-wire suitably bent, substantially as herein specified, for the purposes set forth.

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