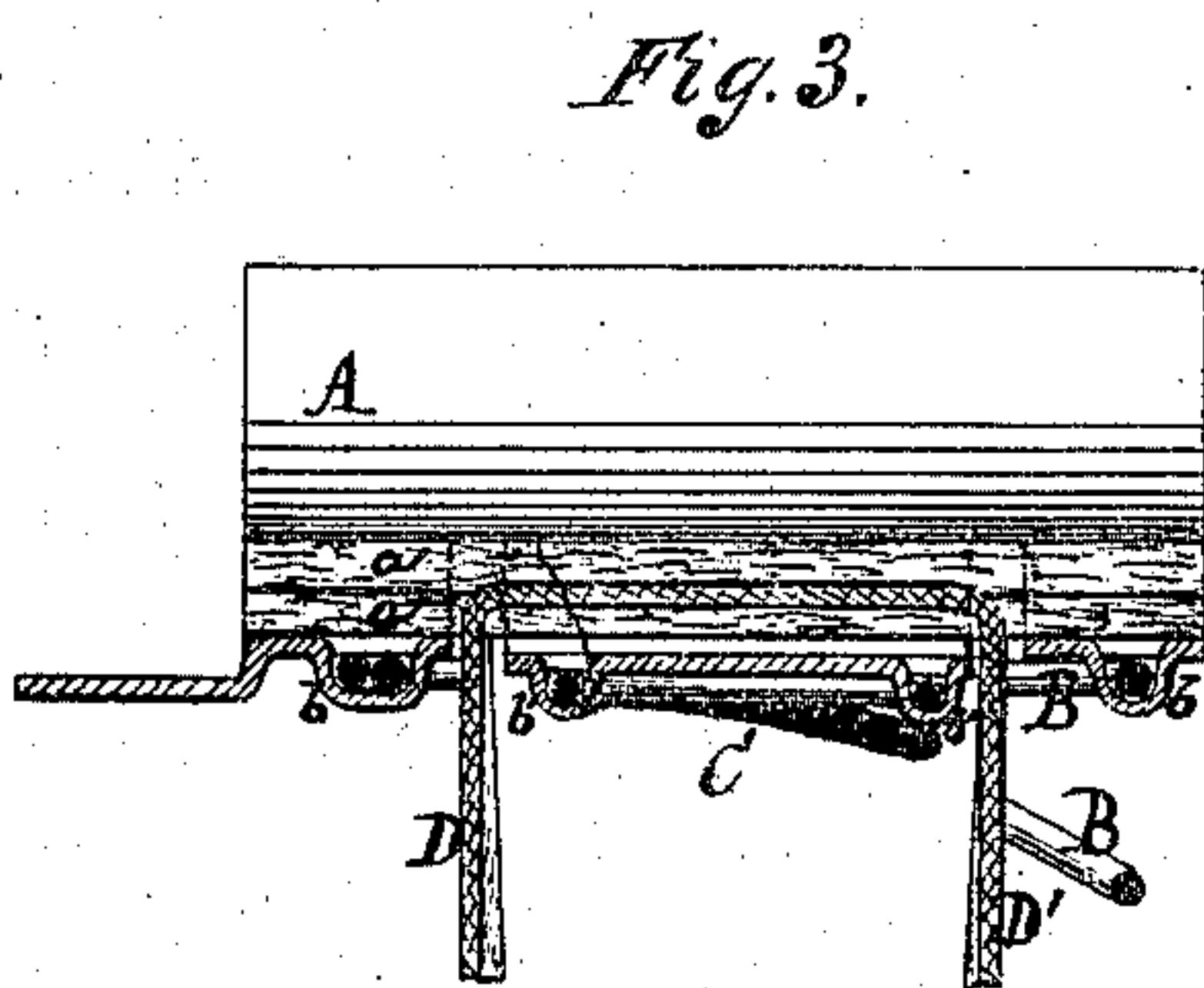
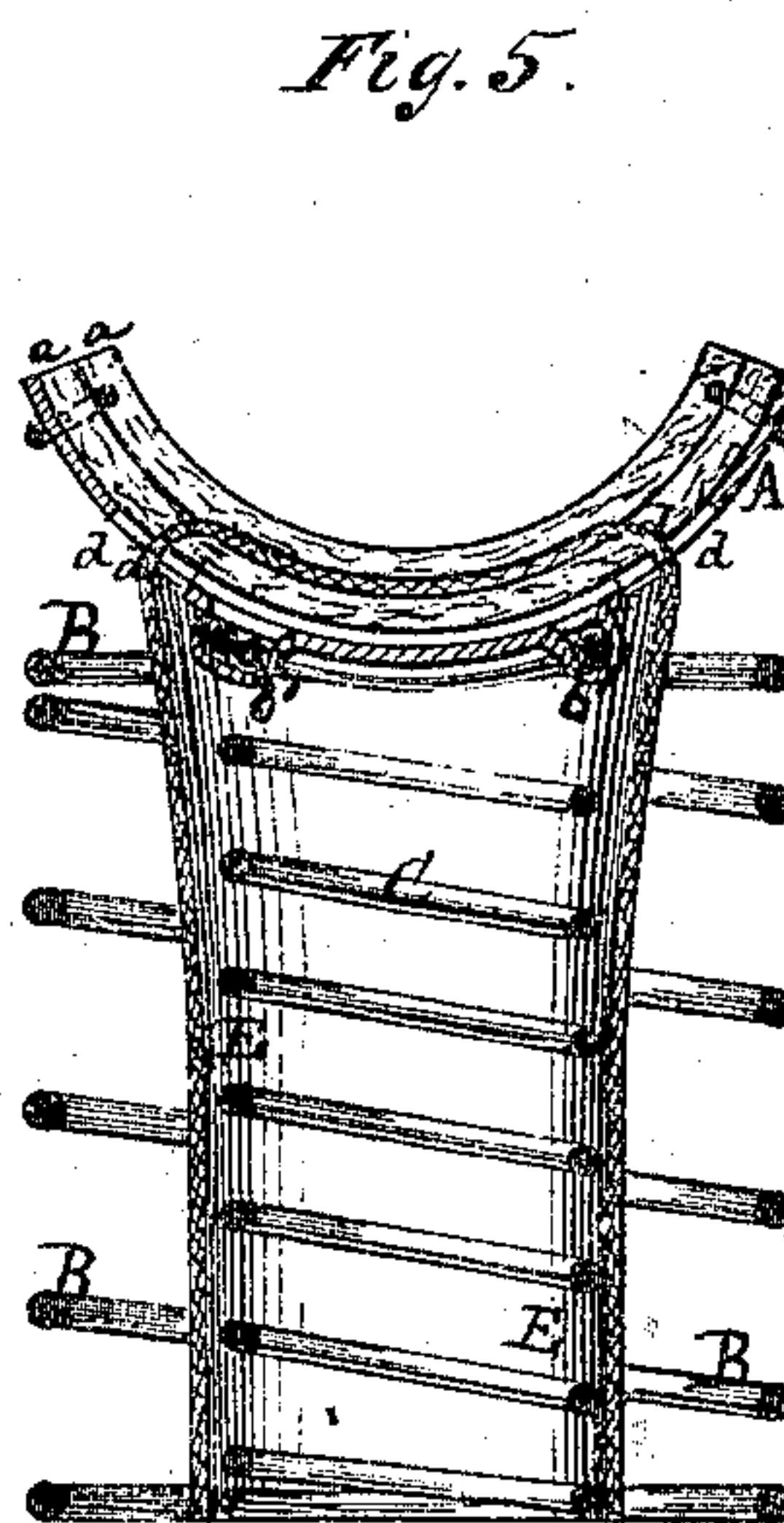
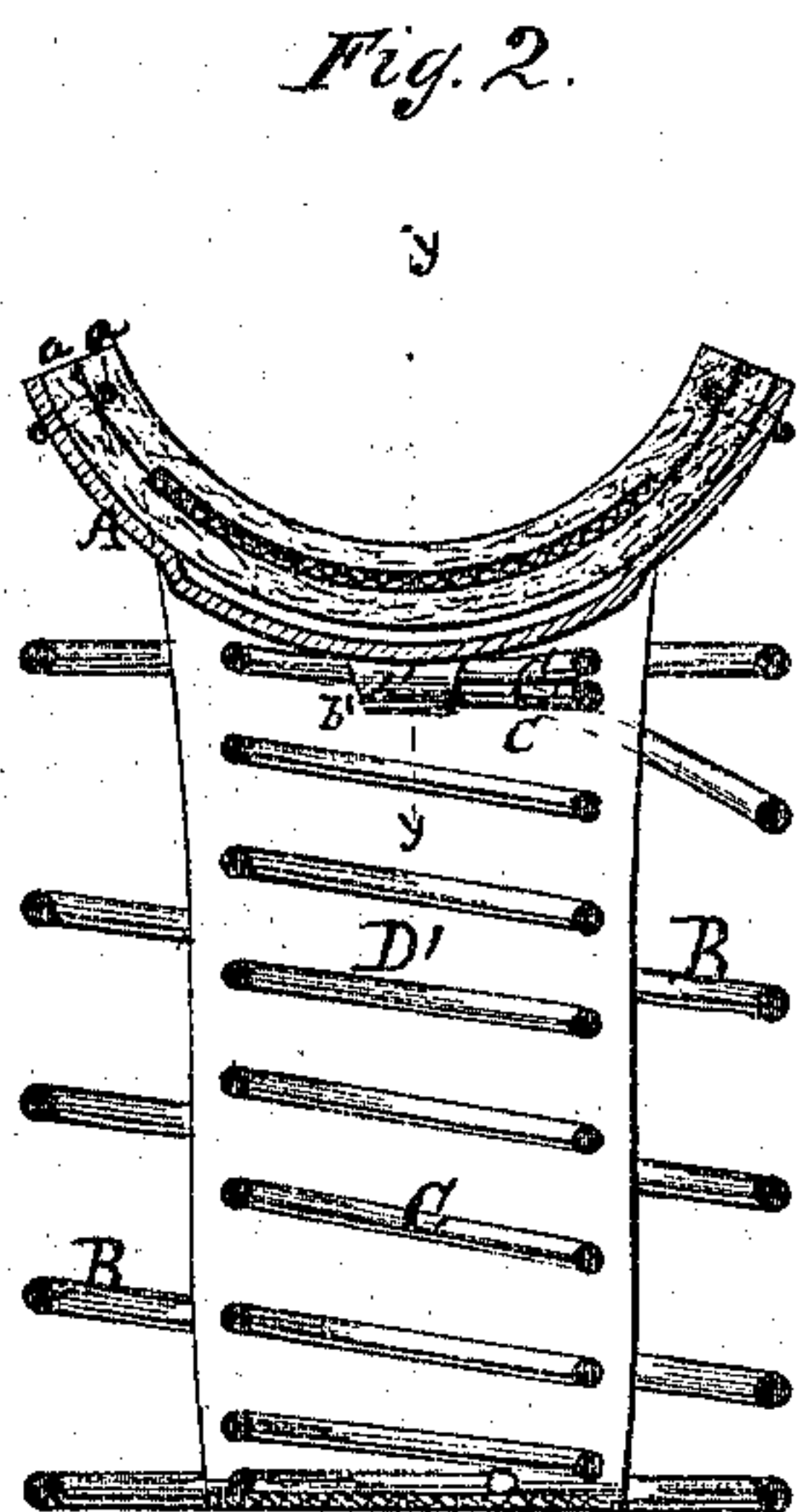
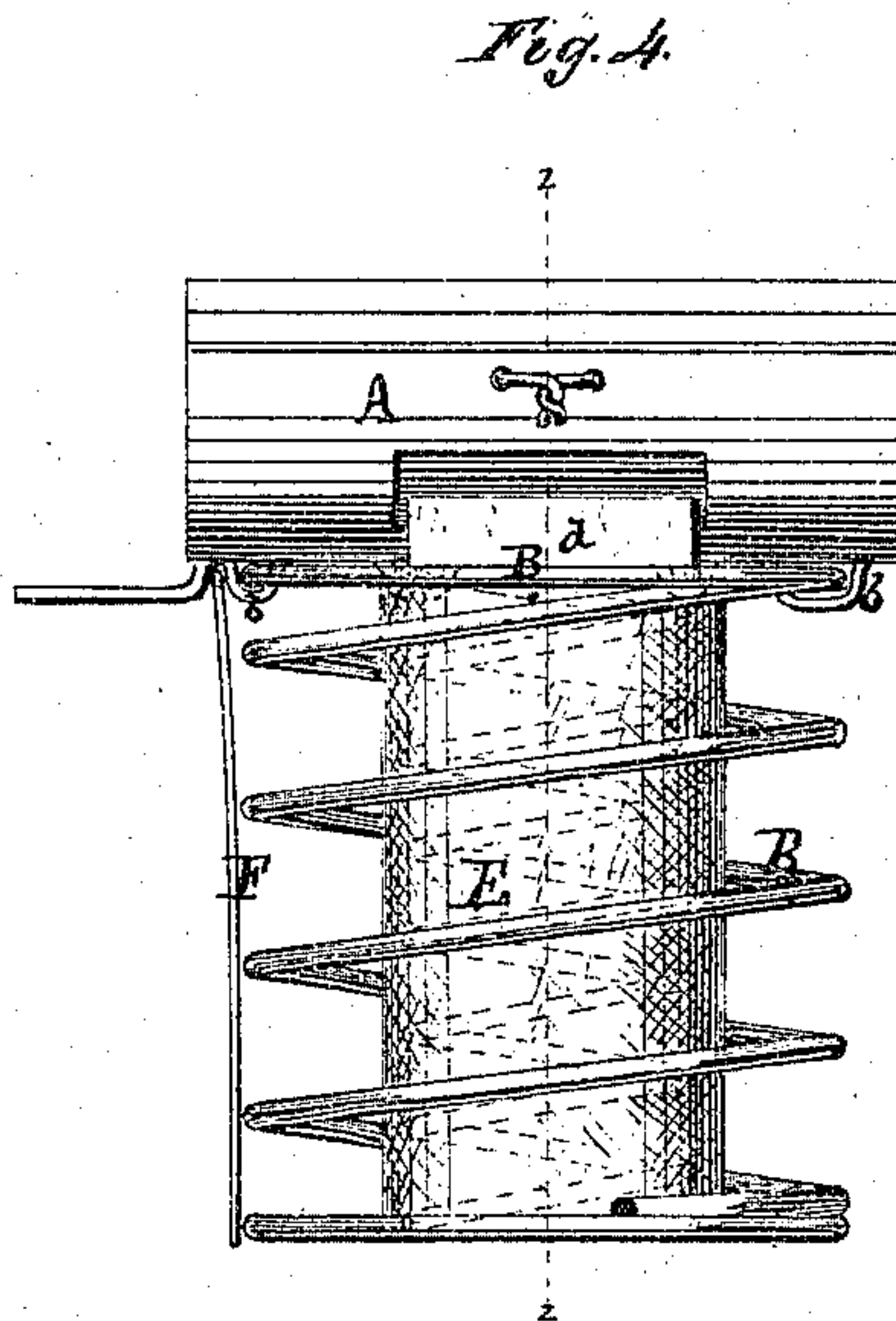
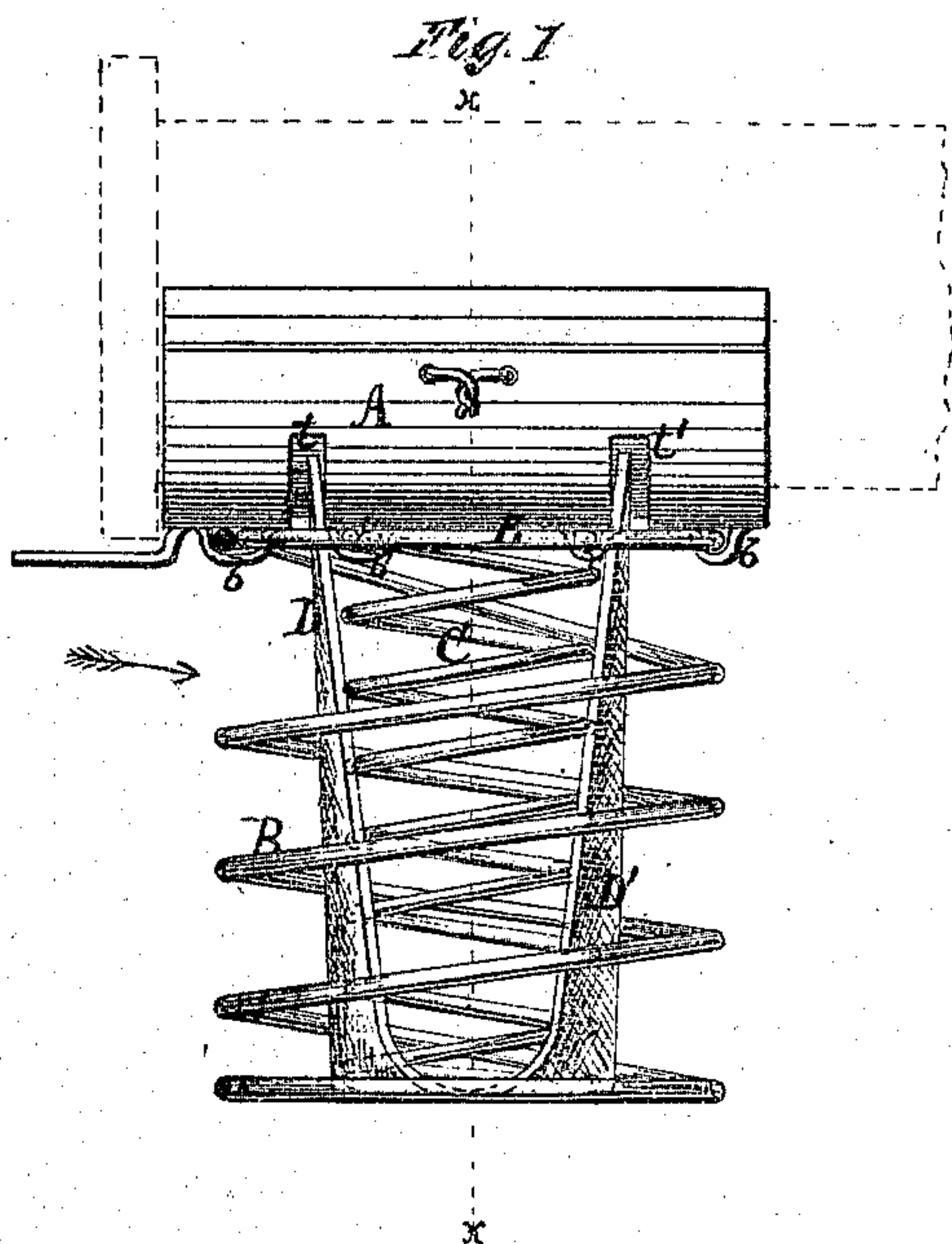


JOSEPH TRENT.
Improvement in Lubricator for Car Axle Boxes.
 No. 124,642. Patented March 12, 1872.



Witnesses:
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JOSEPH TRENT, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN LUBRICATORS FOR CAR-AXLE BOXES.

Specification forming part of Letters Patent No. 124,642, dated March 12, 1872.

To all whom it may concern:

Be it known that I, JOSEPH TRENT, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Car-Axle Lubricators; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing which forms part of this specification.

My invention relates to that class of car-axle lubricators in which a plate containing an absorptive pad or pads is pressed or held up against the journal or axle by the action of a spring, and the lubricating liquid fed or conducted to the pad or pads by a wick reaching down into the oil in the journal-box. Such devices are not new, and they were not found to be as efficient as desired by reason of the fact that dust entering the door of the journal-box would lodge upon both sides of the wick, the latter being placed with its edge toward the door of the journal-box, and hence clog up said wick on both sides, and thereby impair or destroy its efficiency; and, furthermore, the wick, arranged as described, constituted no obstacle or barrier to prevent the surging of the oil in the direction of the length of the box; and hence considerable waste occurred by the slopping of oil from the box, beside the tendency to displace the lubricator by reason of the momentum acquired by the oil in its sweep of the whole length of the box. These difficulties were remedied in a measure by the surrounding of the spring with a jacket; but the application of the jacket increased the cost of the lubricator, besides rendering it impossible to ascertain the condition of the wick without removing the lubricator from the axle-box. My improvements are designed to remedy all the several objections above mentioned. My invention consists in the combination, with the pad-holding plate and an ordinary supporting-spring, of an auxiliary supporting-spring, connected to the plate and arranged within the ordinary supporting-spring, whereby the said pad-holding plate is caused to the more securely maintain its proper position in the journal-box, and a portion of the wick or oil-conductor is caused to remain at the bottom of the journal-box, and hence utilize all the oil therein, and whereby the wick itself is successfully caused to serve as a barrier to pre-

vent the surging of the oil in the box. My invention also consists in the combination, with the pad-holding plate and ordinary spring, of a tubular wick or oil-conductor, whereby the inner surface or strands of the wick will be entirely protected from dust, and hence be at all times an efficient conductor of the lubricating-liquid to the journals, besides being a barrier to prevent the surging of the oil in the box. My invention also consists in the arrangement, in a car-axle lubricator provided with a pad-holding plate and a supporting-spring, of a flat wick in such manner that the broad side of one part or half of the loop will be toward the door of the journal-box, and hence one surface only thereof of one part or half of said wick will effectually serve to shield the remainder of the wick from dust; and the wick or conductor, so arranged, will serve as an efficient barrier or wall across the box to prevent the aforesaid surging of the oil, and the jacket before referred to is entirely dispensed with. My invention also consists in an extremely simple and secure method of connecting the supporting-spring, as well as the auxiliary spring, to the pad-holding plate.

In the accompanying drawing, Figure 1 is a side elevation of a car-axle lubricator, showing my improvements applied thereto. Fig. 2 is a transverse section of the same taken on the plane of the line *x x*, Fig. 1. Fig. 3 is a longitudinal central section of the upper portion of the lubricator, the section being taken on the plane of the line *y y*, Fig. 2. Fig. 4 is a side elevation of a lubricator, showing a modification of my invention. Fig. 5 is a transverse vertical section of the latter taken on the plane of the line *z z*, Fig. 4.

Similar letters of reference indicate like parts in the several figures.

A designates the plate for holding the absorptive pad or pads *a a*, which are pressed against the journal, and B is the supporting-spring. These parts are of the usual construction. The spring is, however, secured to the plate in a different manner than heretofore. In stamping out the plate A, I depress downward from the plate grooves or loops *b b*, (see Figs. 1, 3, and 4,) and in fastening the spring to the plate it becomes necessary only to insert the end of the upper coil through the loop on opposite sides or ends of the plate suc-

cessively, and turning the spring until the said end enters for a second time the groove it first entered. This mode of fastening brings the upper coil of the spring close up to the plate, so that the plate in fact rests bodily upon it; and there is no liability of accidental detachment, as is the case with some methods of fastening at present employed, nor is there any shackling by reason of a loose connection, as is the case with other methods of fastening at present employed. My method of fastening does not in any respect weaken the plate, as is the case where pieces are stamped out and bent downward; but the groove I form therein, on the contrary, strengthens it. I therefore produce an exceedingly simple, and a perfectly secure and reliable, method of securing the plate and spring together. C designates an auxiliary spring of lesser diameter than the spring B. The said spring C is secured to the plate A in any suitable manner, preferably in the same way as described with reference to the spring B, as will be understood by reference to Figs. 1, 2, 3, and 5, where the grooves are lettered $b' b'$; and those in Figs. 1, 2, and 3 run transversely on the plate A, and those in Figs. 4 and 5 run longitudinally on the plate A. This auxiliary spring C performs several very useful and important offices; it causes the plate A to maintain a steadier position under the journal; its pressure against the plate is at a really central point, and its lower end rests on the bottom of the journal-box at a really central point thereof; it insures safety, for should the spring B become for any cause inoperative as a sustaining-spring, the spring C would of itself keep the plate in proper position under the journal; it also serves to keep the loop or bend or lower part of the wick down at the bottom of the journal-box, so that all the oil therein may be carried up to the journal; and it also serves, in connection with the wick, arranged as hereinafter described, as a barrier or wall across the journal-box to prevent the surging of the oil therein.

Before proceeding further I will remark that in lubricators of the class to which my improvements appertain, and hereinbefore referred to, the wick or oil-conductor has been carried down through slots running in the direction of the length of the plate, and the wick passing through such slots presents one edge all round toward the door of the journal-box; and hence both sides of the wick are exposed and the dust entering the journal-box is not restrained from lodging upon both sides of each vertical half or part of the loop, and thereby clogging up the wick and destroying its efficiency as a conductor of the lubricating liquid; and, furthermore, it is manifest that a wick arranged edgewise, as stated, can offer no resistance to the surging of the oil from end to end of the box. In Figs. 1, 2, and 3 I have shown a novel and very efficient way of arranging the wick or oil-conductor so that it will perform thoroughly useful offices in addition to that of an oil-conductor. I provide the

plate A with transverse slots $t t'$ (see Fig. 1) and carry the wick D D' down through the slot t at one end and up through the slot t' at the other end. I thereby extend or spread the wick width-wise across the journal-box. The spring C is located between the two vertical parts of the wick, and said spring is shown (see Fig. 1) as pressing the bend of the wick against the bottom of the journal-box so that said wick shall assume and preserve a proper operative position. The wick or conductor thus arranged width-wise across the journal-box, and especially when strengthened and steadied by the spring C, becomes a wall or division-plate across the box, and hence is an effectual barrier, preventing the oil from surging from end to end of the box. The outside surface of the vertical portion D of the wick (which is that nearest to and facing the door of the journal-box) will catch the dust entering the box, (see the arrow in Fig. 1,) and therefore effectually shield the vertical portion D' of the wick, (or that nearest the rear end of the box,) and hence this portion D' will be kept in excellent condition, and will conduct to the pads all the oil which may be needed to keep the axle lubricated. It will therefore be seen that by this arrangement of a flat wick I am enabled to accomplish two very necessary requirements in a lubricator of the character mentioned beside the usual office of the wick as an oil-conductor—to wit, protection of the oil-conducting portion of the wick from dust and preventing the slopping of the oil from the box by reason of the momentum the oil would otherwise acquire by surging from end to end of the box. Heretofore the two ends of the wick have been permanently fastened to one of the pads in the plate A or to the plate itself, where no pads were used. I find it desirable to unite the two ends of the wick and thus make it endless, as will be understood by reference to Fig. 3. This endless wick or oil-conductor may at any time, without removing the lubricator from the journal-box, be drawn round to clean it of dust, or to bring a more efficient part into position as the oil-conducting portion. In Figs. 4 and 5 I have shown a tubular wick, E, for an oil-conductor, portions d of which pass up through slots in the plate and between the absorptive pads $a a$. This tubular wick is drawn over the auxiliary spring C, and by it caused to maintain a proper position, and its lower end held down to the bottom of the journal box. This tubular wick, in combination with the said auxiliary spring, serves as an efficient barrier or wall across the journal-box to prevent the surging of the oil, as hereinbefore referred to. The side of this tubular wick, which faces the door of the journal-box, serves to catch the dust entering the box and effectually shields the rear portion of said wick, and therefore said rear portion will retain its efficacy as an oil-conductor; and, moreover, a tubular wick has an advantage over flat wicks in this respect—its inner walls or surface are always shielded from dust or dirt, and conse-

quently serve as a most efficient conducting medium. A tubular wick, therefore, possesses many advantages and performs very important offices in a car-axle lubricator. F, Fig. 4, designates an apron, which, if it be desired, may be suspended from the plate A and allowed to hang down in front of the spring B, and thus serve as a primary dust-shield.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the auxiliary spring C with the pad-holding plate A and supporting-spring B, arranged and operating substantially as and for the purposes herein specified.

2. The combination, with the plate A and

spring C, of the tubular wick E, substantially as and for the purposes herein specified.

3. The arrangement of the wick or oil-conductor D D' with reference to the plate A and journal-box of a car-axle, in such manner that the said wick becomes a barrier to prevent the surging of the oil in the box, and also a shield protecting the oil-conducting part of the wick from dust, substantially as herein specified.

4. The method of attaching the spring B or C to the plate A by means of grooves or loops *b* or *b'*, substantially as herein specified.

Witnesses:

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