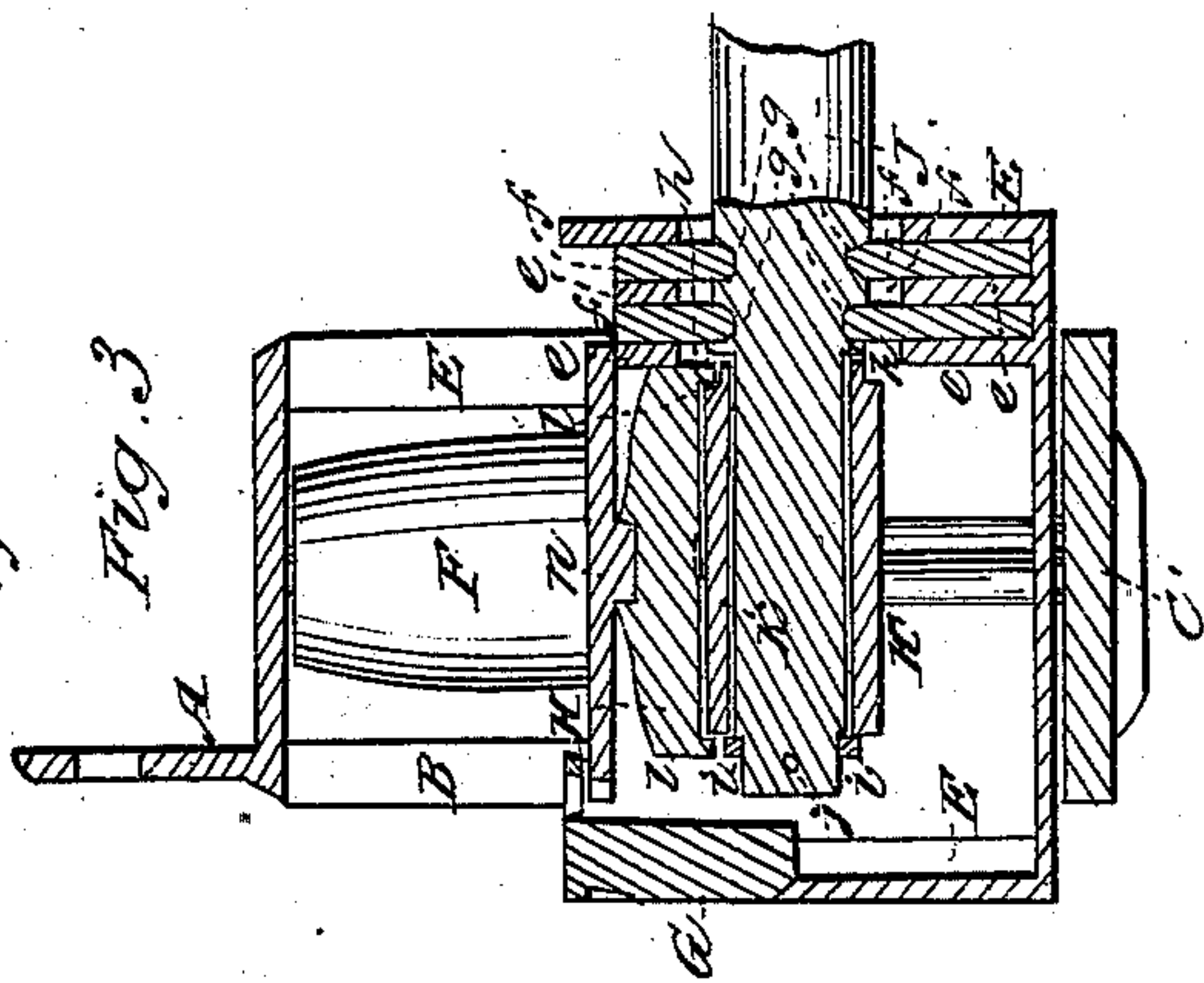
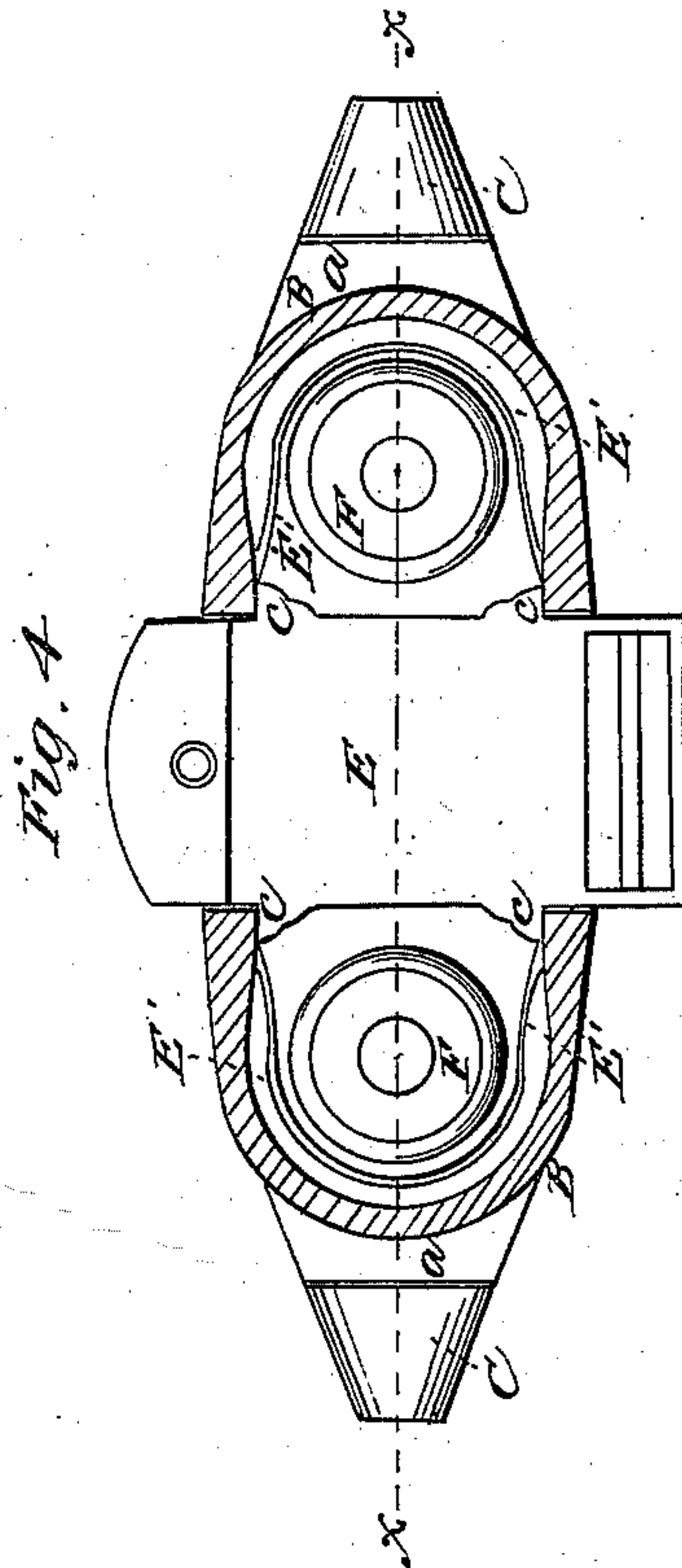
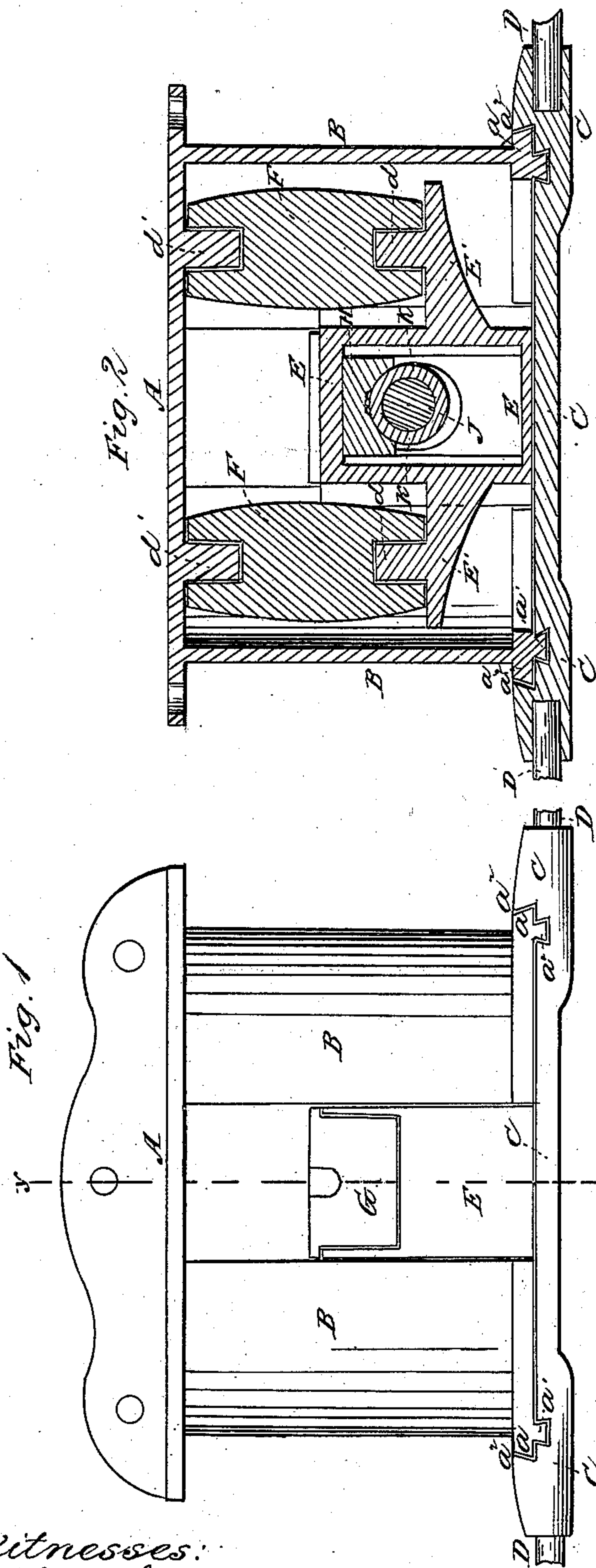


N. CAMPBELL.
Car-Axle Box.

2 Sheets—Sheet 1.

No. 63,783.

Patented April 16, 1867.



Witnesses:
R. S. Campbell
Edw. S. Chaper

Inventor:
Neil Campbell
by
Mason, Tomnick & Lawrence

N. CAMPBELL.
Car-Axle Box.

No. 63,783.

Patented April 16, 1867.

Fig. 6

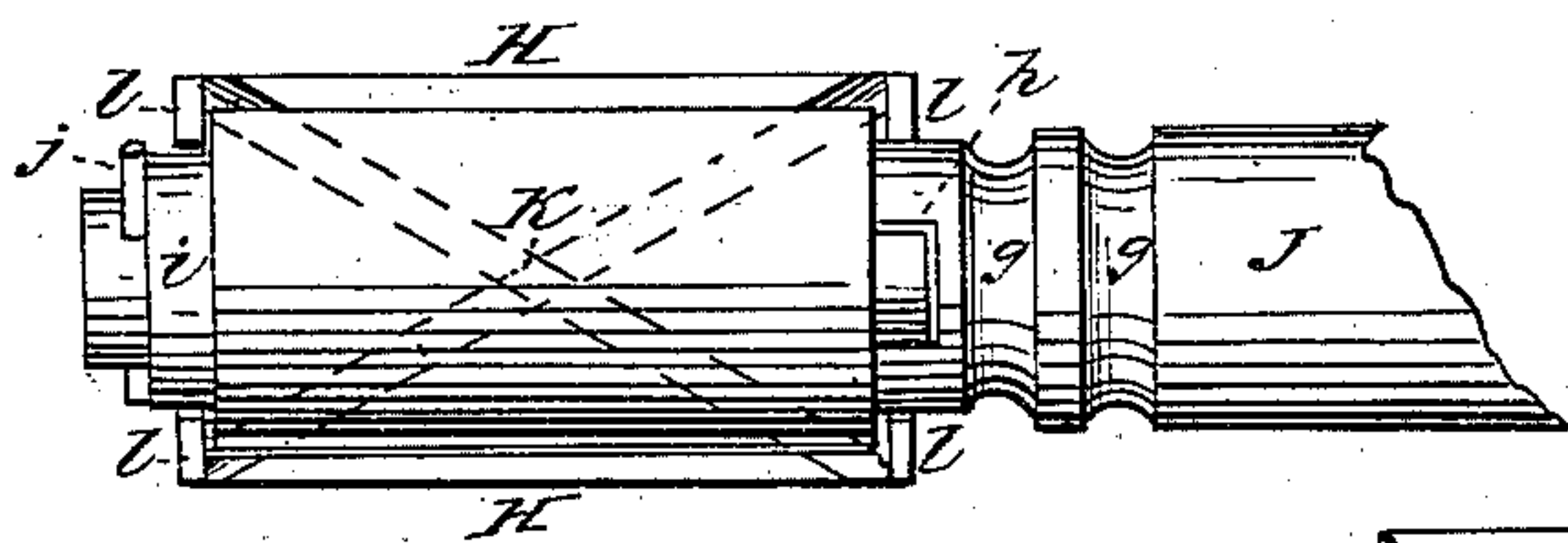


Fig. 5

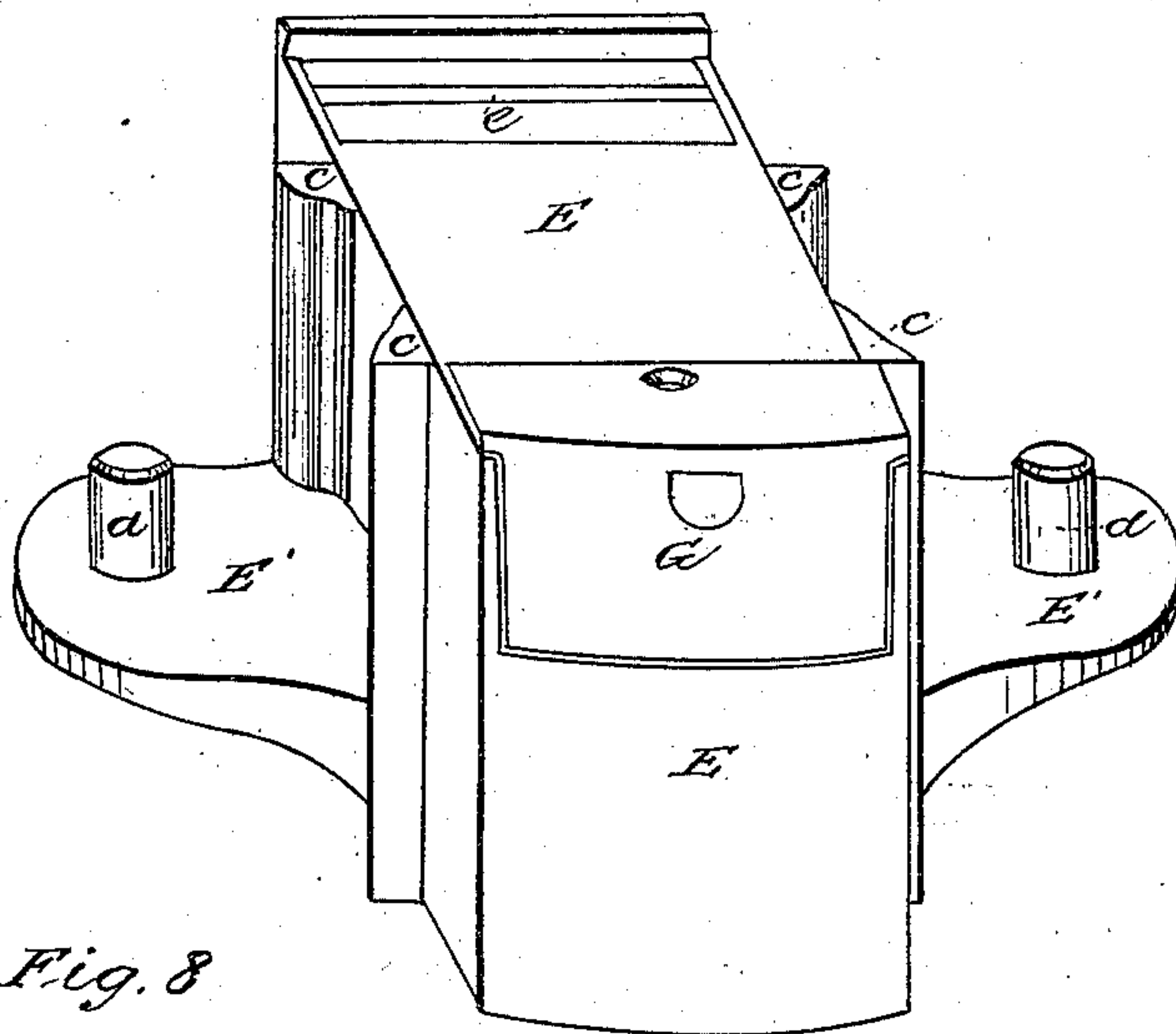


Fig. 7

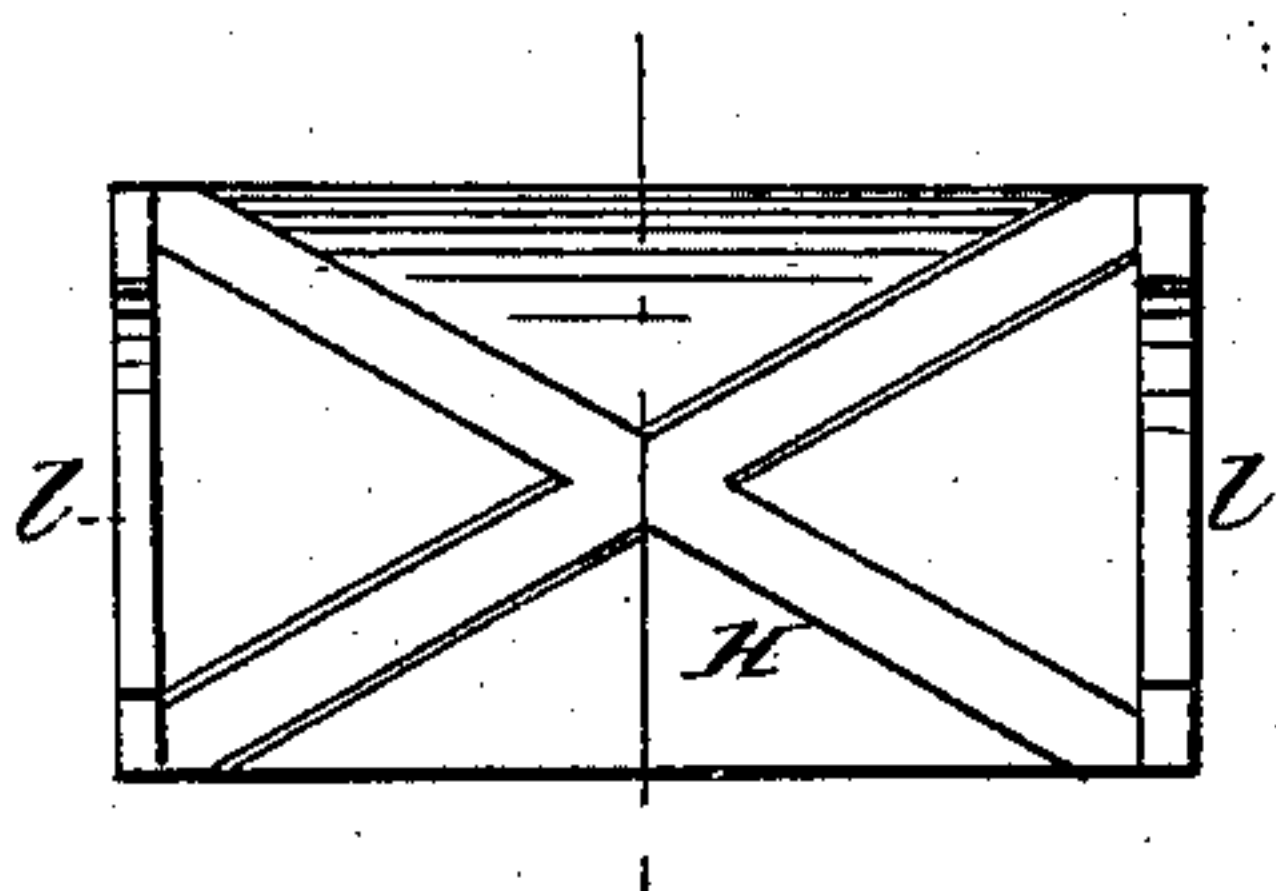
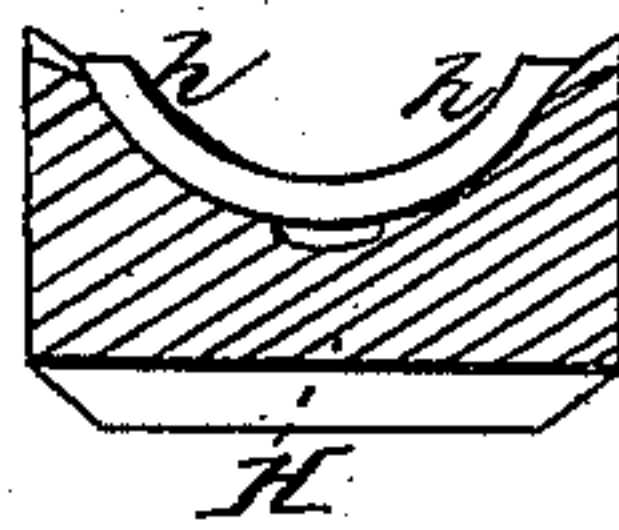


Fig. 8



Witnesses:
H. S. Campbell
Edw. Schaefer

Inventor.
Neil Campbell
by
Mason Fenwick & Lawrence

UNITED STATES PATENT OFFICE.

NEIL CAMPBELL, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND WILLIAM FRAZIER, OF SAME PLACE.

IMPROVED AXLE-BOX.

Specification forming part of Letters Patent No. 63,783, dated April 16, 1867.

To all whom it may concern:

Be it known that I, NEIL CAMPBELL, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements on Axle-Boxes, Axles, and Pedestals for Street-Railroad Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation of the improved pedestal and axle-box. Fig. 2 is a vertical section taken longitudinally through the same. Fig. 3 is a transverse section taken in a vertical plane through the center of the same. Fig. 4 is a section taken in a horizontal plane through the pedestal above the springs therein. Fig. 5, Sheet 2, is a perspective view of the spring-supporting axle-box. Figs. 6, 7, and 8 are views showing the bearing for the axle.

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

This invention relates to certain novel improvements on the construction of axles, axle-boxes, and pedestals, which are designed for street-railroad cars.

The first part of my invention has for its object the construction of car-pedestals with removable base-plates, so that the axle-boxes and springs can be readily removed from the pedestals by detaching said base-plates and elevating the cars, as will be hereinafter described.

Another object of my invention is to provide for the attachment and confinement in place of the springs between brackets on the axle-boxes and the top plates of the pedestals, without the use of through-bolts, as hitherto adopted, as will be hereinafter described.

Another object of my invention is to provide the bearing-blocks of axle-boxes with oblique intersecting grooves or channels, passing over the journals of the axles, and adapted to serve as passages for conducting oil over the axles, and distributing the oil uniformly thereon, as will be hereinafter described.

Another object of my invention is to provide the ends of a car-axle with removable sleeves, which are secured firmly in place, so as to form

enlarged journals, which can be renewed at pleasure, as will be hereinafter described.

Another object of my invention is to provide for the use of sheets of india-rubber in a car-axle box, in such manner as to form a closely-fitting packing around the axle, and prevent the escape of oil or the entrance of dust, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

The pedestal, which is adapted for receiving the axle-box and springs, consists of a flanged cap, A, having two hollow guides, B B, projecting perpendicularly from its bottom surface, and arranged at such distance apart as to receive and form guides for the axle or journal box. The lower ends of the guides or pedestals B B have projecting lips *a a* formed on them, the outer ends of which are slightly beveled, as shown in Figs. 1 and 2, and on the bottom faces of these lips dovetail wedge-shaped tenons *a¹ a¹*, which latter are received by corresponding grooves formed in a removable base-plate, C, and serve, in conjunction with beveled or overhanging shoulders *a² a²*, for securing the plate C in place on the bottoms of the pedestals, as shown in Figs. 1 and 2. By reference to the dotted lines in Fig. 4, it will be seen that the tenons *a¹ a¹* taper from their inner ends outward, so that the plate C can only be removed from the pedestals B B by drawing it outward, which can be readily done by first detaching the brace or stay rods D D from their sockets in the tapering ends of the said plate C.

When this base-plate C is removed, which is done without detaching the pedestals from the car, the lower ends of the pedestals will be open for the removal of the axle-box and its attachments. When said plate is secured in place, as aforesaid, the axle-box bears upon it when there is no weight upon the car. It not only serves to prevent the axle-box from leaving its pedestals, but it also affords a means for securing together the pedestals at their lower ends, and greatly strengthening them.

To remove the axle-boxes from the pedestals the plates C are first detached, after which

the car is lifted by means of jacks, or other mechanical power.

The axle or journal box E is fitted loosely within the space between the two pedestals B B, and is prevented from displacement by the four vertical guides *c*. (Shown in Figs. 4 and 5.) On both vertical sides of said box brackets E' are formed, having short studs *d d'* projecting perpendicularly from their upper faces, which studs are designed for receiving the lower ends of india-rubber springs F F, the upper ends of which receive corresponding studs *d' d'*, which are formed on the inner face of cap A, as shown in Fig. 2. When the axle-box is in its place, between the pedestals or guides B B, the axles of the pins *d d'* on each side of it coincide, and enter the ends of springs F F sufficiently far to keep the latter in place.

The front end of the box E is provided with a closely-fitting sliding gate, G, for affording access to the interior of the box, and for the insertion into this box and the removal therefrom of the bearing-block H. This axle-box is also divided by one or more partitions, *e*, near the inner end, for the purpose of affording a space or spaces for the insertion of one or more sheets of india-rubber, *f f*, which should be slipped in place from the top of the box, where an opening is left for the purpose. The sheets of rubber have holes through them slightly less in diameter than the smallest diameter of the end of the axle J, so that when the axle is slipped in place, by passing it through said holes in the rubber sheets, the latter will contract and fit snugly in the annular grooves *g g* in the circumference of the axle, and thus form a packing, which will prevent the escape of oil from the box, and also the entrance of dust or other foreign substance into the box. The holes which are made through the end of the box E and partitions *e* are slightly elongated, and made of such diameter as will allow the axle to bear firmly against the concave face of the bearing-block H and the rubber packing, to form a tight joint.

That portion of the axle J which projects within the oil-chamber of the box E receives upon it a cylindrical sleeve, K, which is constructed with lugs *h* upon its inner end, or that end nearest the car-wheel, which lugs are received by recesses formed in the axle, and serve, in conjunction with a collar and key, *i j*, to keep the sleeve in place, and prevent it from turning upon its axle. By removing the key-pin *j* and collar *i*, the sleeve K can be slipped off its axle whenever desired.

The object of having the sleeve or journal face removable is to allow of its renewal whenever the old sleeve wears out. By making the sleeve of steel, or of cast-iron with chilled face, or of some other durable metal, it will not require renewal for a long time. This sleeve K is somewhat larger in diameter than that portion of the axle which enters the oil-chamber of box E; consequently I am enabled to pre-

vent endwise play by forming flanges *l l* at the ends of the bearing-block, which flanges project over the ends of the sleeve, as shown in Figs. 3, 6, 7, and 8. The back of the bearing-block H is constructed with a recess in it, which receives the tenon *n* on the inner surface of the box E, which prevents this block from having end play.

The concave bearing-surface of the block H is grooved obliquely, as shown in Fig. 7, and its lower edges are curved outward, as shown in Fig. 8. This allows the oil which is in the chamber of box E to be carried over the axle through said channels in oblique directions. Thus the oil is uniformly applied to the frictional surfaces in considerable quantities.

From the above description it will be seen that the axle, the wheels, the axle-box, and the springs can all be removed from a car by simply detaching the plates on the bottoms of the pedestals, and then elevating the car a proper height to allow the axle-boxes to pass out of their places. It will also be seen that the india-rubber springs F F are made nearly solid, the holes for receiving their studs *d d'* being made but short distances into their ends; also, that an axle can be made very durable in consequence of having that portion of it which is subject to wear renewable; also, that the oil is prevented from escaping at the point where the axle enters the box E by an india-rubber gland or packing.

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

1. The flanges *a a'* on the exterior of the pedestal, in combination with the grooved and shouldered removable base-plate C, substantially in the manner and for the purpose described.
2. The removable base-plate, constructed so as to be applied as described, and also with sockets to receive a tie-rod and end braces, D D, substantially in the manner shown and described.
3. The combination of the brackets E', studs *d d'*, and solid springs F F, substantially in the manner and for the purpose described.
4. The combination of the enlarged sleeves K with a grooved-face bearing-block, H, having flanges *l l*, substantially as described.
5. The lugs *h h*, collar *i*, and pin *j*, in combination, as a means for securing a removable sleeve, K, to the arm of a railroad-car axle, substantially as herein described.
6. The box E, with brackets E' on its sides, and the pedestal with semi-cylindric chambers, and with a cap, A, so that solid springs F F may be employed, and confined in place by means of the removable base-plate C, all substantially in the manner described.

NEIL CAMPBELL.

Witnesses:

SAMUEL PARKHILL,
JOHN M. PHELPS.