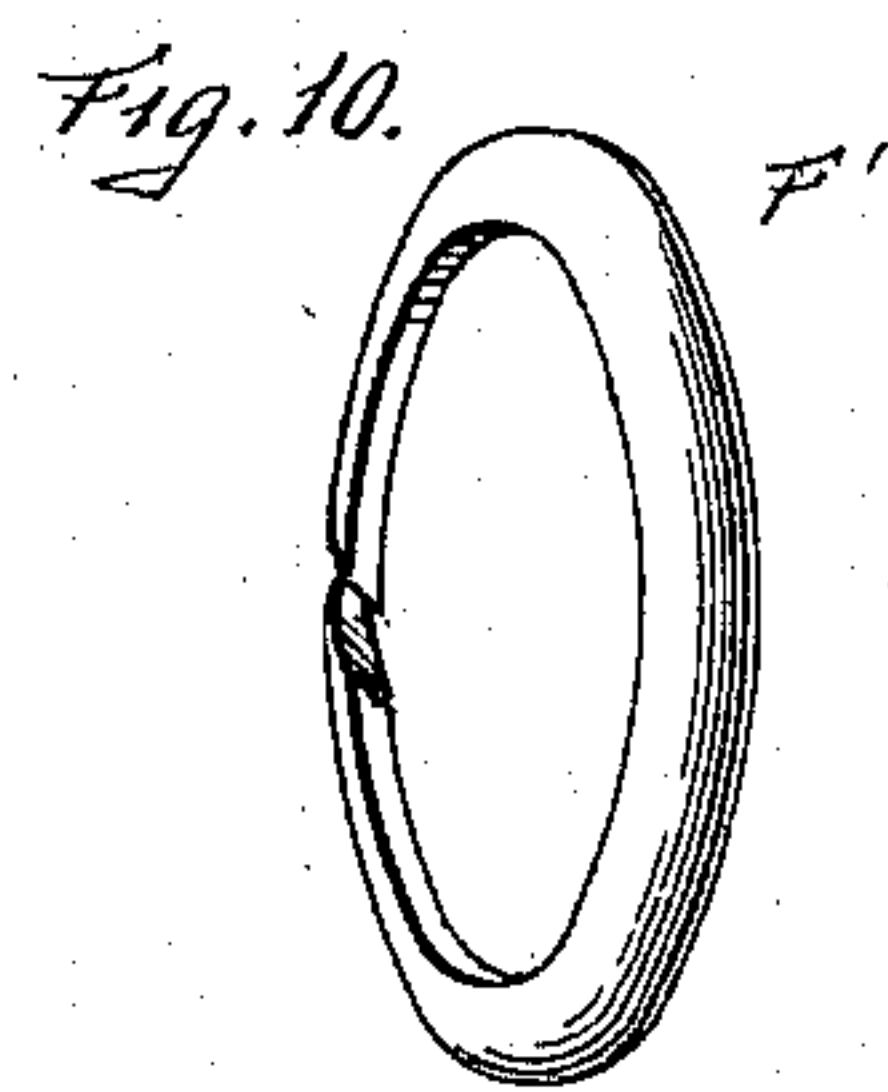
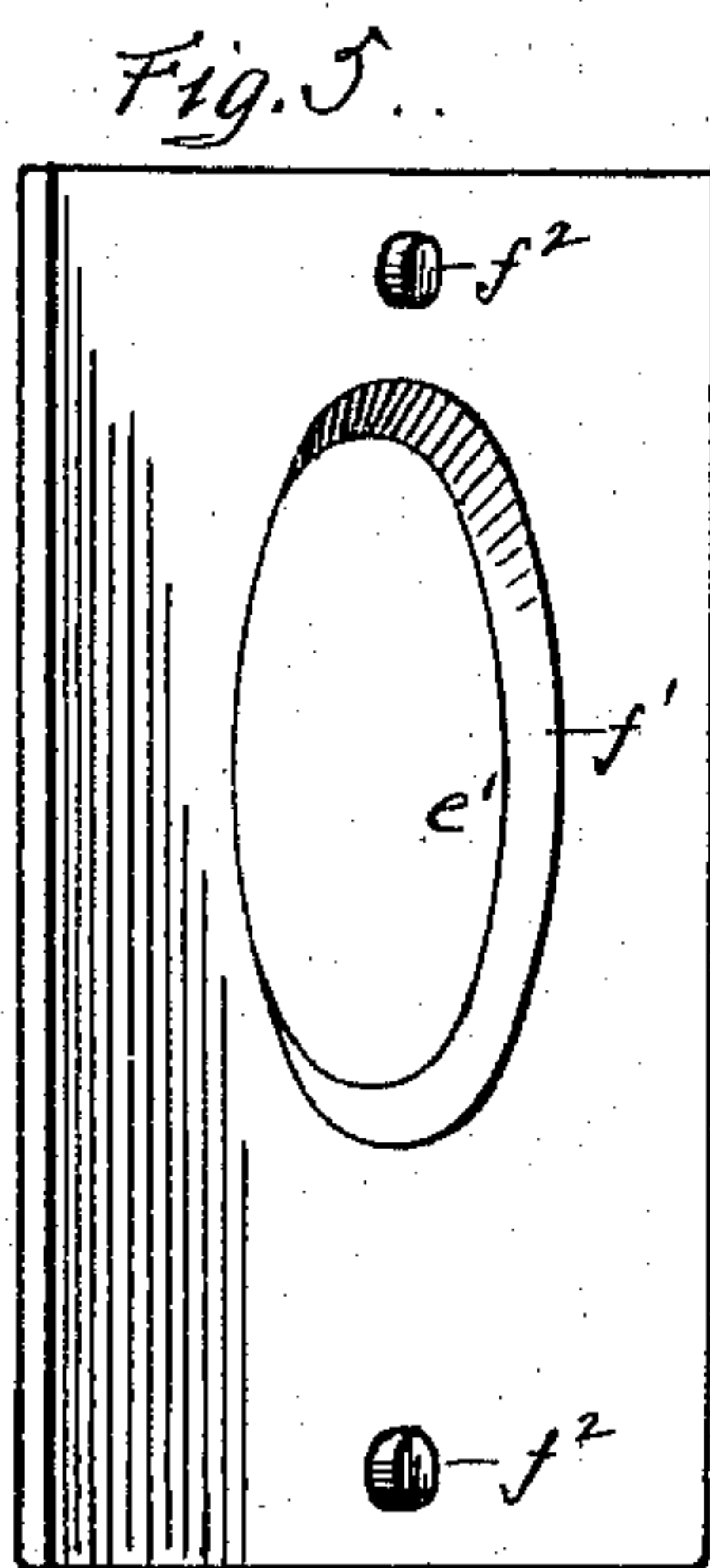
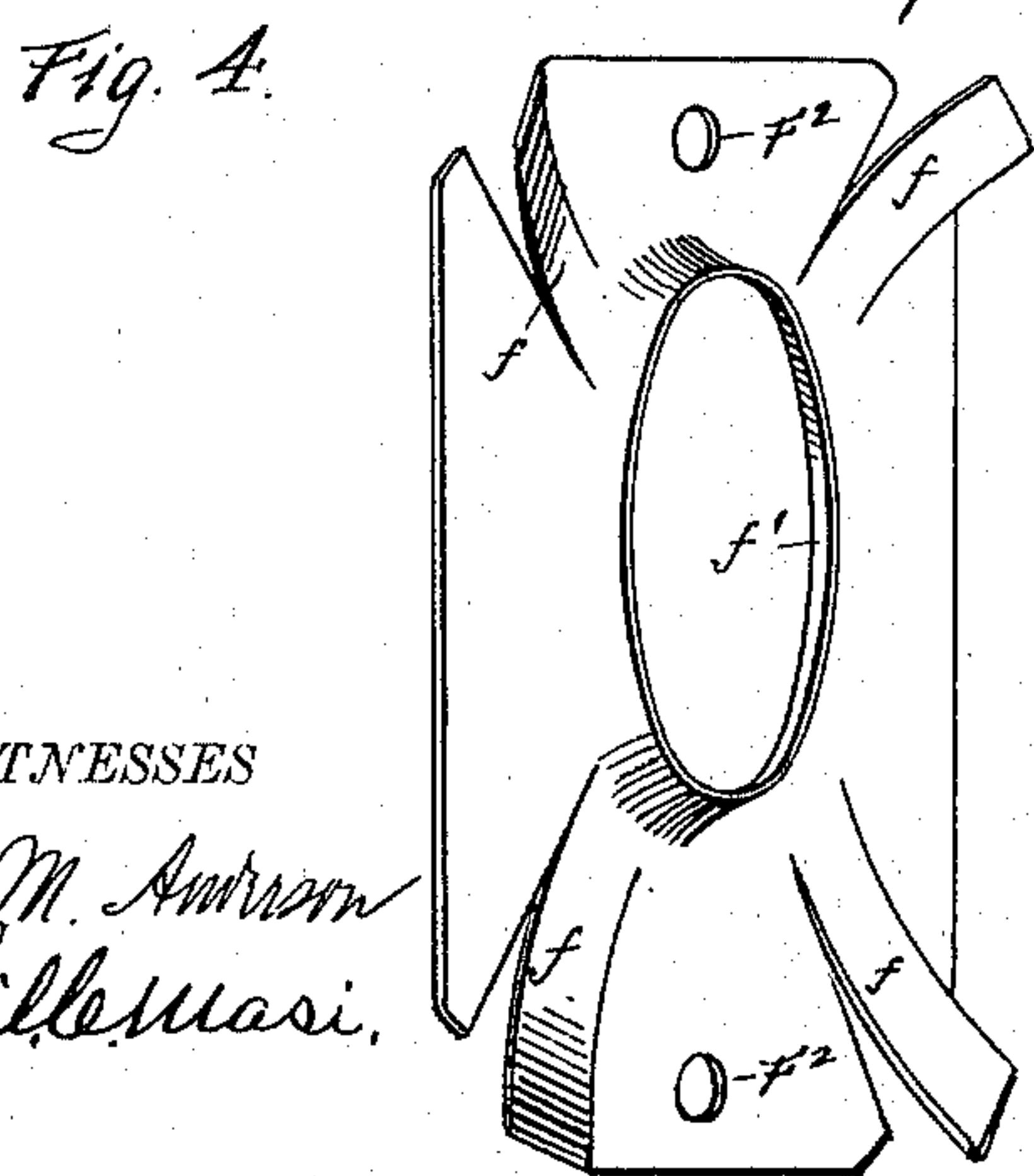
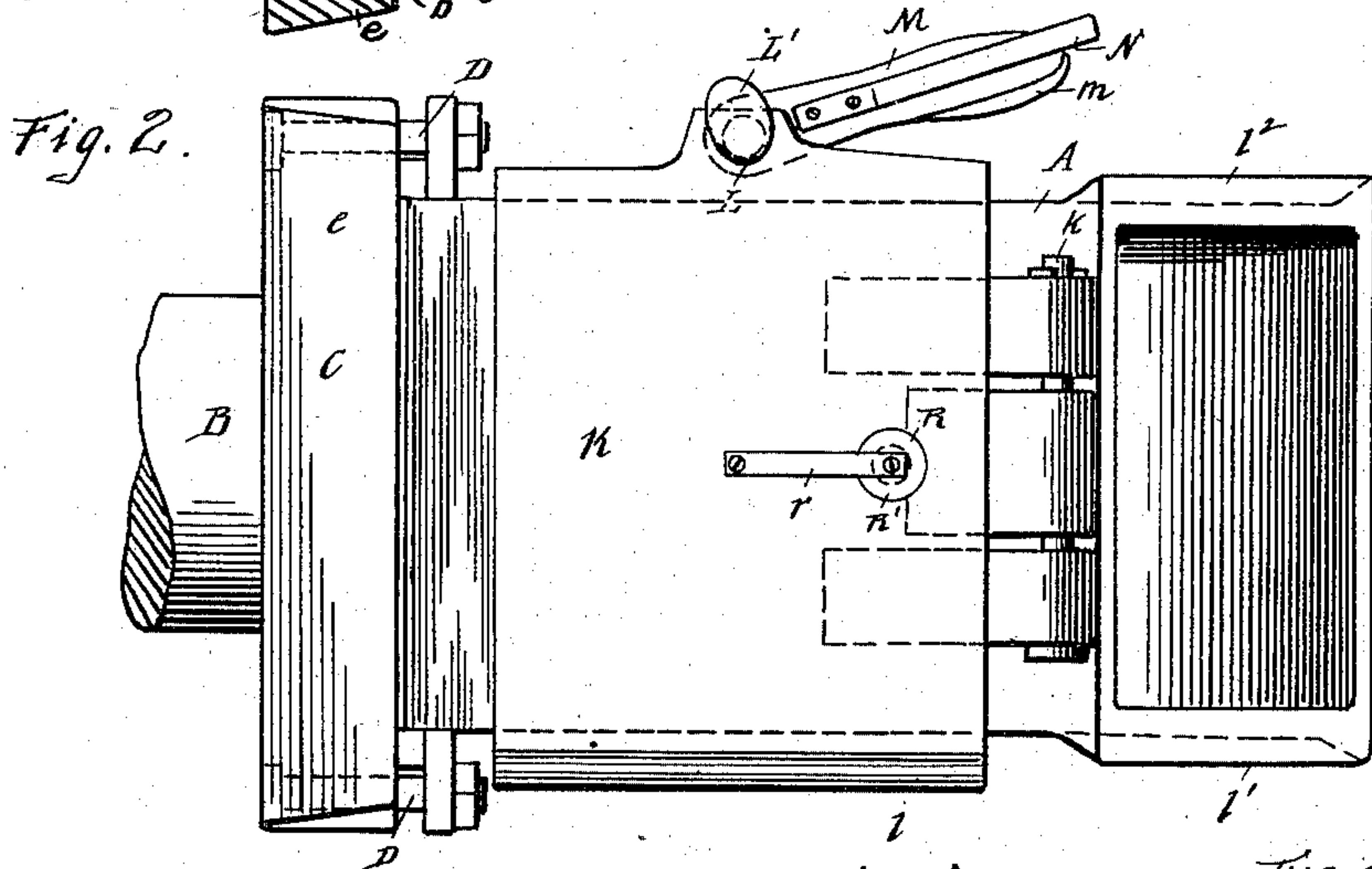
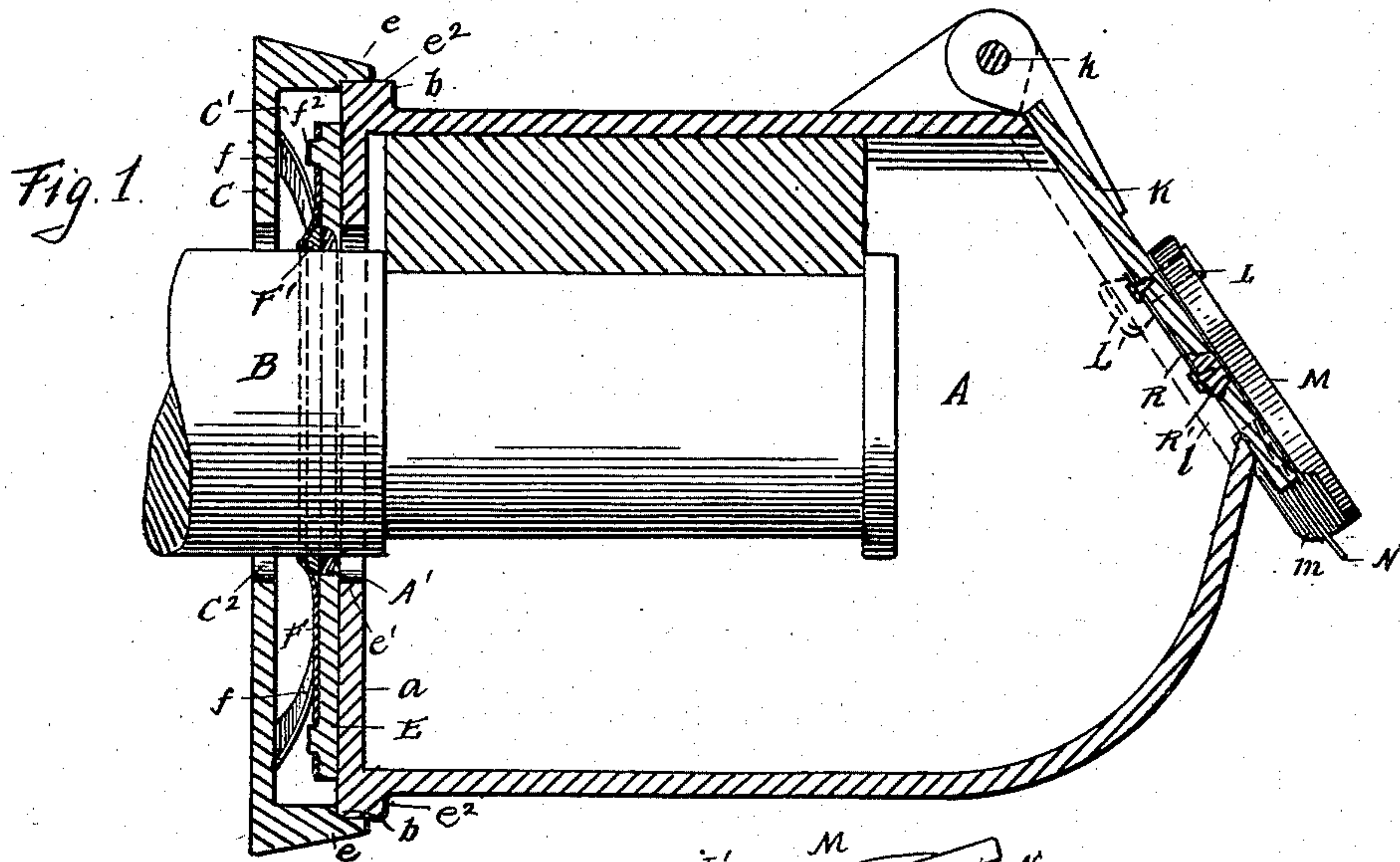


H. E. WELSH.
CAR AXLE BOX.

No. 565,870.

Patented Aug. 11, 1896.



WITNESSES
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(No Model.)

2 Sheets—Sheet 2.

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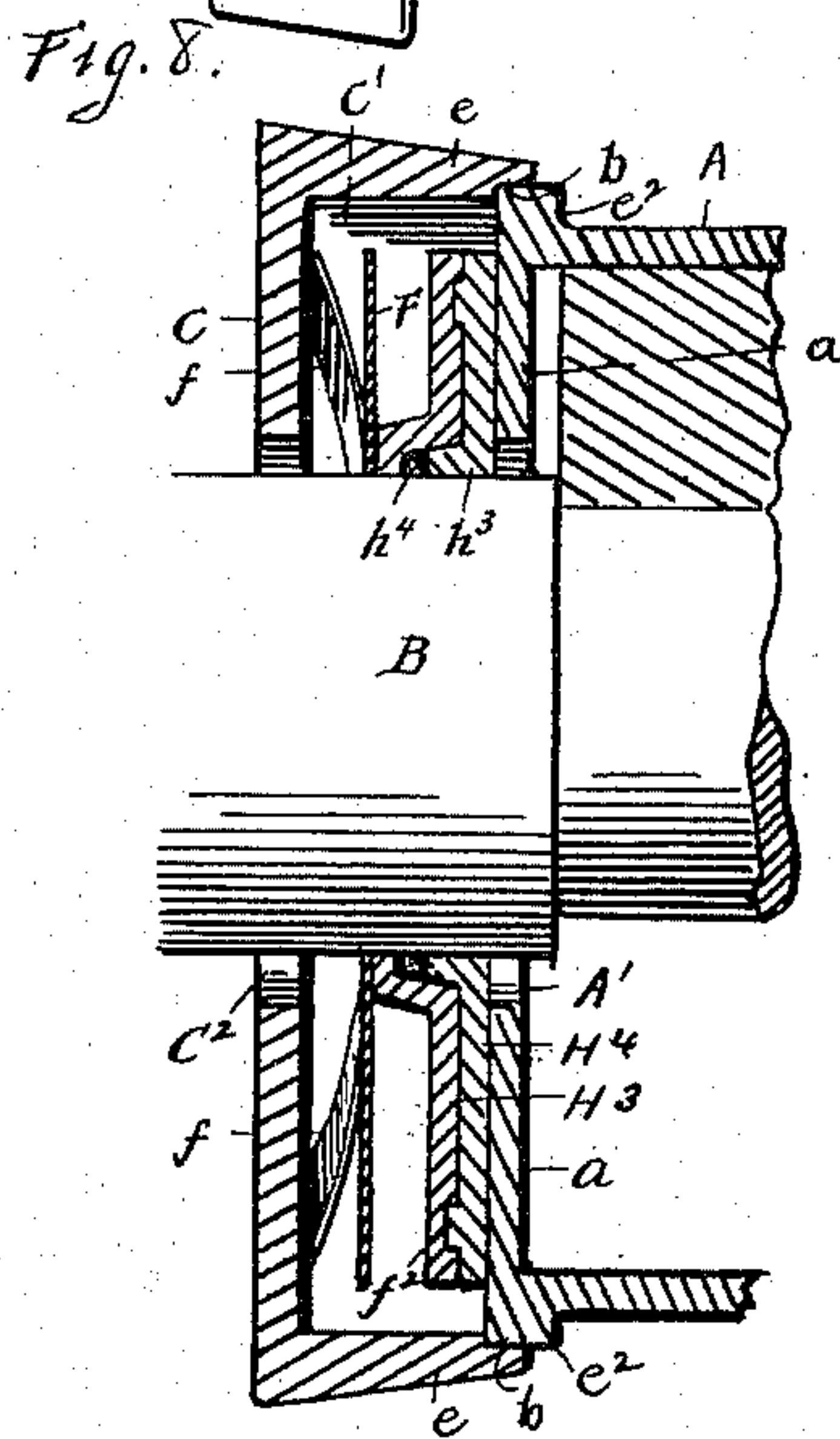
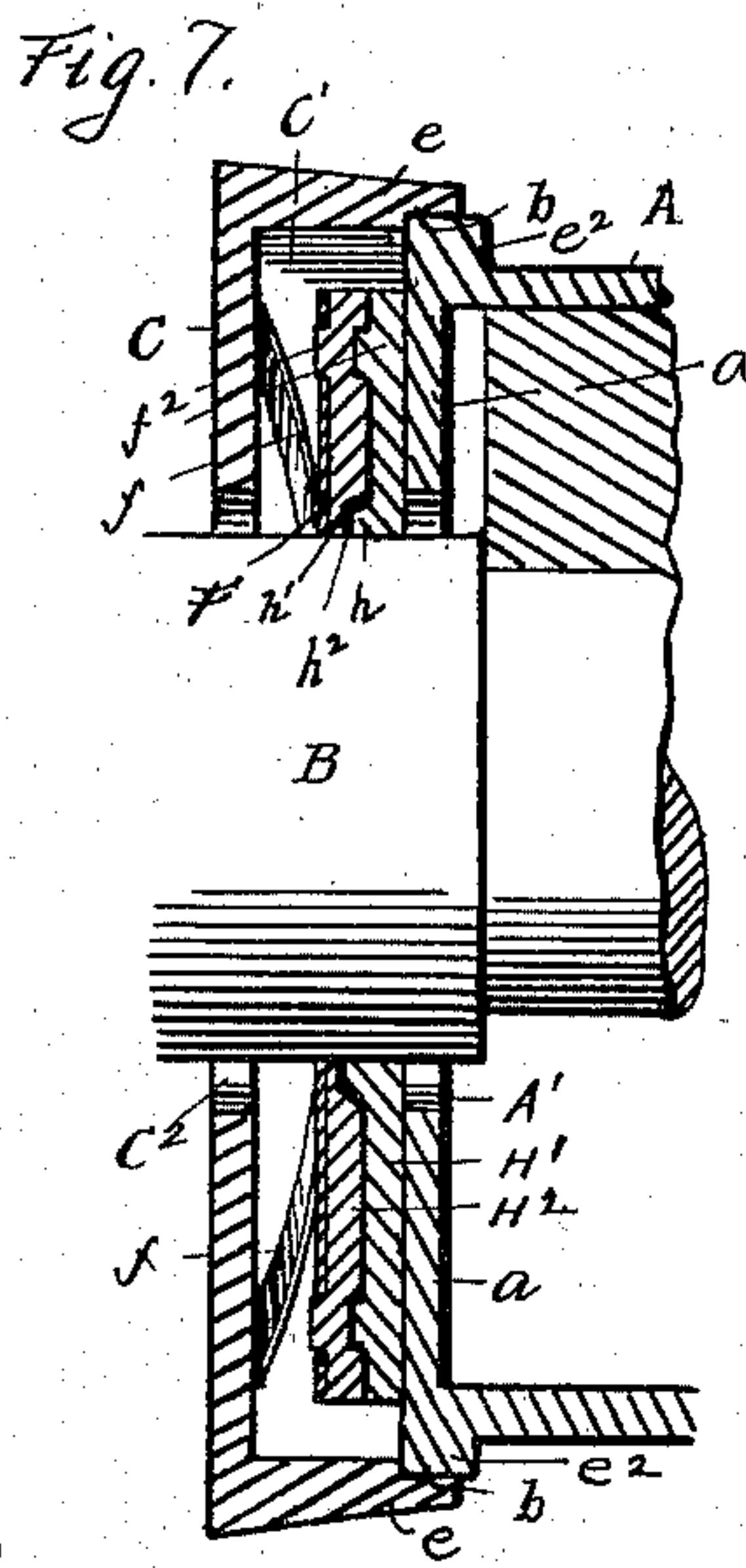
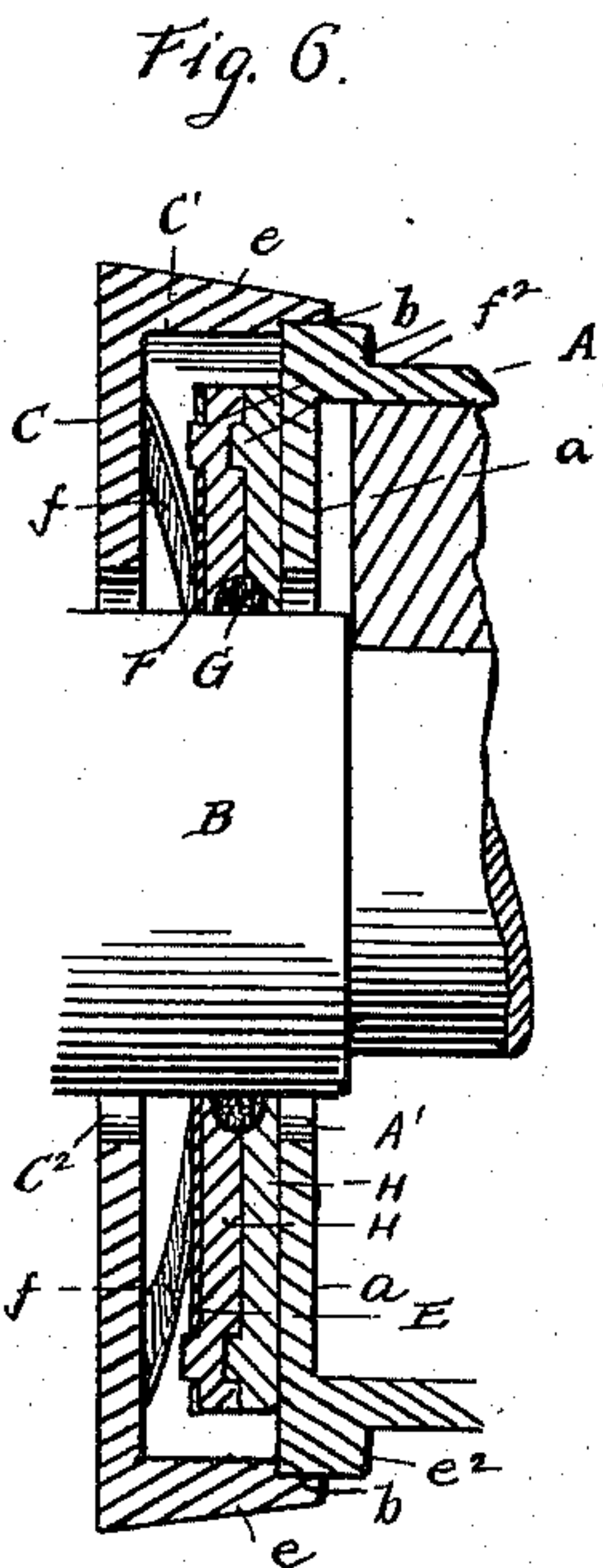
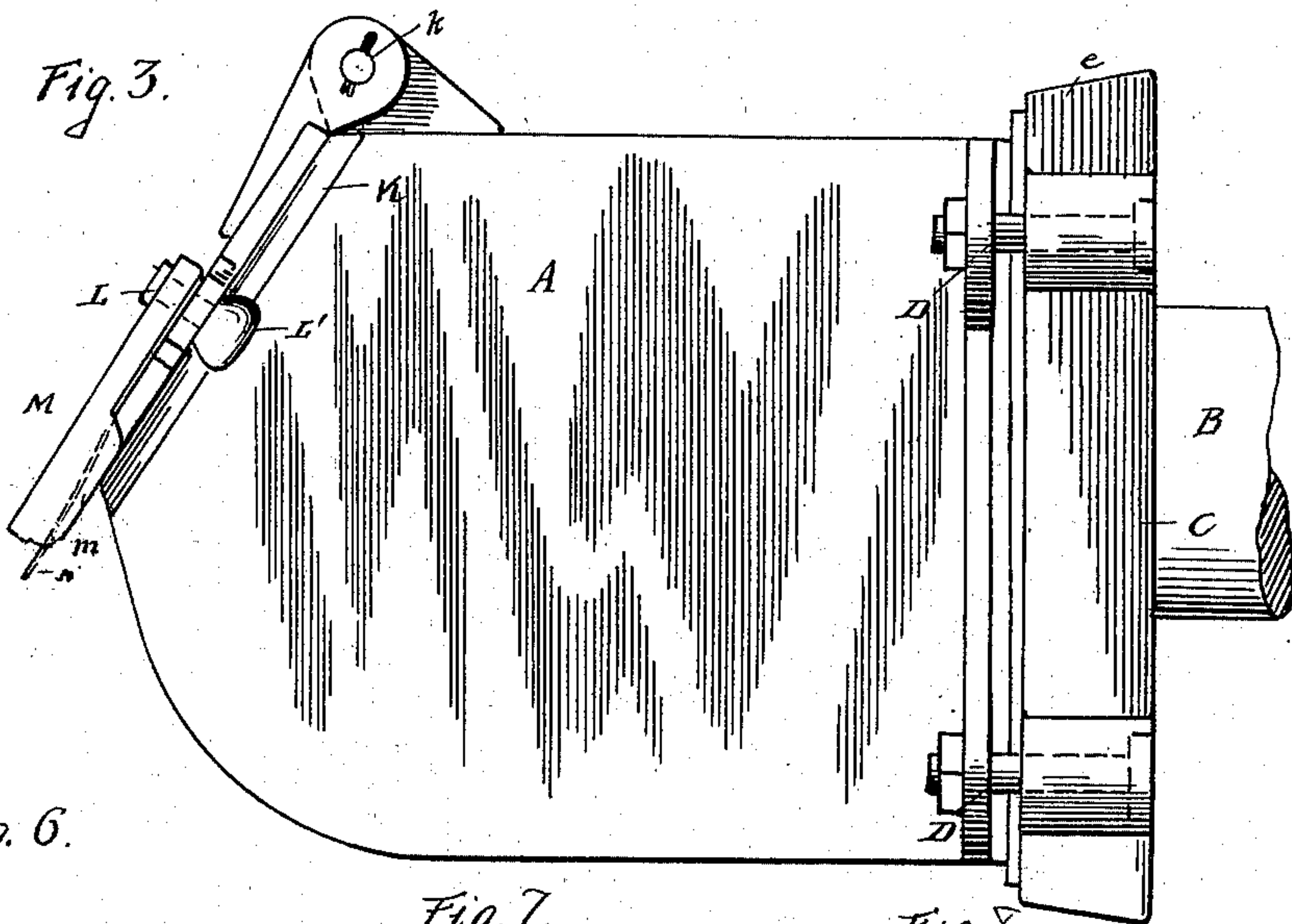
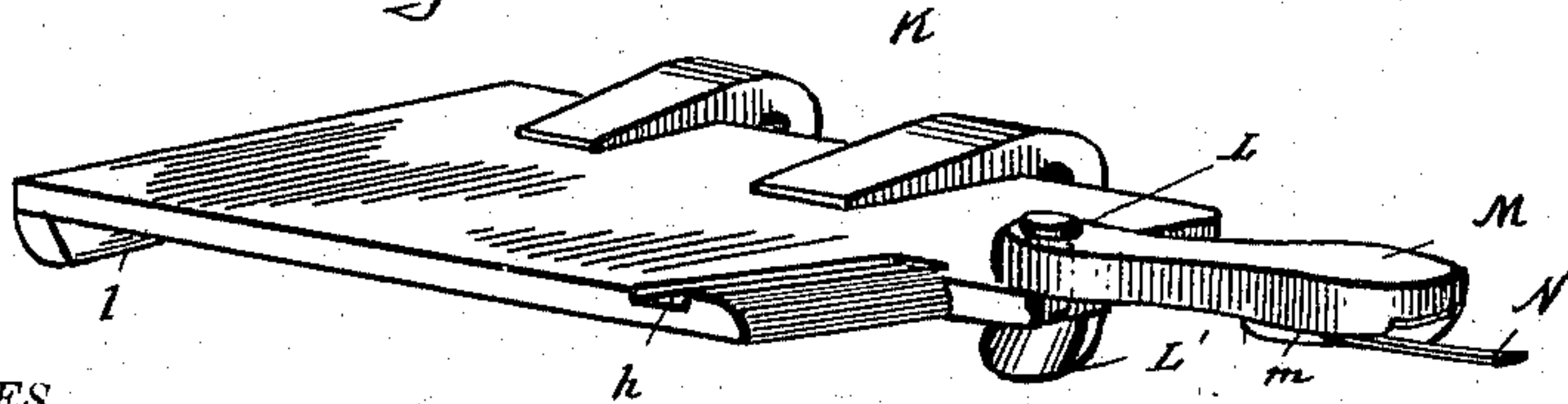


Fig. 9.



WITNESSES

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UNITED STATES PATENT OFFICE

HAMILTON E. WELSH, OF COLUMBIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WILLIAM HENRY LONG, OF SAME PLACE.

CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 565,870, dated August 11, 1896.

Application filed December 27, 1895. Serial No. 573,512 (No model.)

To all whom it may concern:

Be it known that I, HAMILTON E. WELSH, a citizen of the United States, and a resident of Columbia, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Car-Axle Boxes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a vertical section through center of box. Fig. 2 is a plan view of box with cover raised. Fig. 3 is a side elevation of box. Figs. 4 and 5 are details of packing-plates E and F. Figs. 6, 7, and 8 are sectional views showing different modifications of packing. Fig. 9 is a perspective view of cover detached. Fig. 10 is a perspective view of one section of packing-ring.

The object of this invention is, mainly, to provide a car-axle box with an improved packing which will render the box oil and dust proof, which will accommodate itself to the movements of the axle, and which will not be injured by the box burning out.

A further object is to provide an improved construction of the box-cover and its fastening devices.

With these objects in view the invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, the letter A designates the box, in the rear end *a* of which is formed an oval opening A', which is of considerably larger diameter than the axle-journal B.

C designates a cap-plate having a surrounding flange *e*, which fits neatly a surrounding rib or projection *e*² of the box and is rabbeted at *b* to seat the said rib or projection. Said cap-plate C and flange, with the wall *a* and rib, form a chamber C', in which is the packing presently to be described. Formed in the cap-plate C is an oval opening C², which cor-

responds to the opening A', and through which the axle passes in entering the box.

D designates draw-bolts by means of which the plate C may be drawn tightly to its seat.

I have devised several forms of packing which may be employed in the chamber C, and which I have shown in Figs. 1, 6, 7, and 8 of the drawings.

Referring first to Fig. 1, the letter E designates a plate which is placed within the chamber C' next to the wall *a*, and which is formed with an opening *e*', which fits neatly the axle B. The meeting-faces of the plate E and wall *a* are planed to form a close joint.

F designates a second plate, formed of spring metal, and which is placed between the plate E and the cap-plate C, around the axle. Said plate F has a series of bent tongues *f*, which bear against the said cap-plate.

F' designates a metallic packing-ring, which is usually split or formed into two sections, as indicated, and which is placed around the axle between plates F and E. Said ring F' is convex on its outer face, to receive which the openings in the plates E and F are countersunk, as indicated at *f*'. Formed on one of said plates, as E, are one or more projections *f*², which engage a corresponding recess or recesses in the other plate, as F², and maintain the two plates in the same relation to each other.

In lieu of the metallic ring F', I may employ an asbestos or like ring G, as shown in Fig. 6. When a metallic ring or rings are employed, they should be cut, as indicated in Fig. 10, to permit them to expand and contract with the axle.

When the cap C is drawn tightly to its seat, it is apparent that a packing will be formed around the axle which will effectually prevent the escape of oil or the entrance of dirt. It will also be observed that the plates E and F are free to move in the chamber C' both laterally and vertically, according to the movements of the axle.

In Fig. 6 is shown an arrangement of the packing wherein two parallel plates H H are employed. These plates are similar to the plate E above described, and the inner edges are countersunk to receive a packing-ring G,

which is here shown as being of asbestos. I have also shown the spring-plate F in this construction; but it may be omitted, if desired.

5 In Fig. 7 is a similar arrangement, with the exception that one of the plates (designated by H') is formed at its inner edge with an annular beveled flange h , which is received in a corresponding seat h' of the opposing plate
10 H². A packing h^2 is usually interposed between the two plates, but it may be omitted.

Fig. 8 shows a fourth arrangement, wherein one of the plates, H³, is sleeved upon a boss h^3 of the other plate, H⁴, a packing h^4 being in-
15 terposed. The spring-plate F is also shown in this figure, but it may be omitted.

The packing being of asbestos or metal in each of the constructions above described, it is not destroyed by the box taking fire and
20 burning out, but after such event the box can be cooled and again filled with oil and waste without danger of leakage.

I will now proceed to describe the second improvement, which relates to the cover K.
25 Said cover is pivoted at its upper edge to a bolt k , which is sufficiently loose in its bearings to permit a limited endwise play of the cover. Said cover at one of its lateral edges has on its under side an undercut cleat or rib
30 l , which is designed to engage over a beveled rib l' on the box A. Pivotally seated in the opposite edge portion of the cover is a bolt L, the lower end of which has a cam-head L', which is adapted to engage underneath a beveled
35 rib l^2 on the box. M is a lever which is attached to the bolt L, and in the lower face of which is seated a flat spring N. As the said lever M is moved toward the edge of the cover the cam-head L' engages the rib l^2 and draws
40 the rib l underneath the rib l' . The movement of the lever is limited by a stop projection m , which engages the edge of the cover, and at this time the spring N is brought over a groove n in the cover, into which it springs
45 and locks the lever with the cover securely fastened. The end of the spring is extended into position to be pressed to release it from the groove n when it is desired to lift the cover.

50 R designates a small aperture in the cover by means of which oil may be supplied to the

box when the cover is closed. This aperture is closed by a plug R', which seats from the inside and is carried by a spring r . When the nozzle of the oil-can is inserted into this
55 aperture, the plug is pushed back.

If it is desired to remove the brass from the box, this may be done by simply raising the box high enough from the axle to allow the brass to be taken out without removing the
60 rear portion of the box.

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

1. The combination with the box having the
65 enlarged opening in its rear end wall, the cap-plate having a rabbeted flange which fits a rib of the box, means for securing said cap-plate in place, a pair of packing-plates placed around the axle within said cap-plate, and a
70 packing-ring seated between said packing-plates, substantially as specified.

2. In a car-axle box, the combination with the box having the enlarged opening in its rear wall, the close-fitting cap-plate seated
75 upon a rib of the box, and having a similar opening therein, a pair of packing-plates around the said axle within the cap-plate and movable therein with the axle, one of said
80 plates constituting a spring, and a packing-ring between the said plates and seated in countersunk portions thereof, substantially as specified.

3. In a car-axle box, the combination with the box having the bevel-ribs l' , l^2 upon oppo-
85 site sides of the cover-opening, of the pivoted cover capable of a limited endwise movement on its pivot, and having at one edge an undercut rib or cleat l which is designed to engage underneath the rib l' , the bolt pivotally seated
90 in the opposite edge portion of the said cover, and having a cam-head adapted to engage the rib l^2 , the handle-lever attached to the said bolt, and the spring-lock therefor, substan-
95 tially as specified.

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

HAMILTON E. WELSH.

Witnesses:

C. E. LENIG,
BRUNER KAUFFMAN.