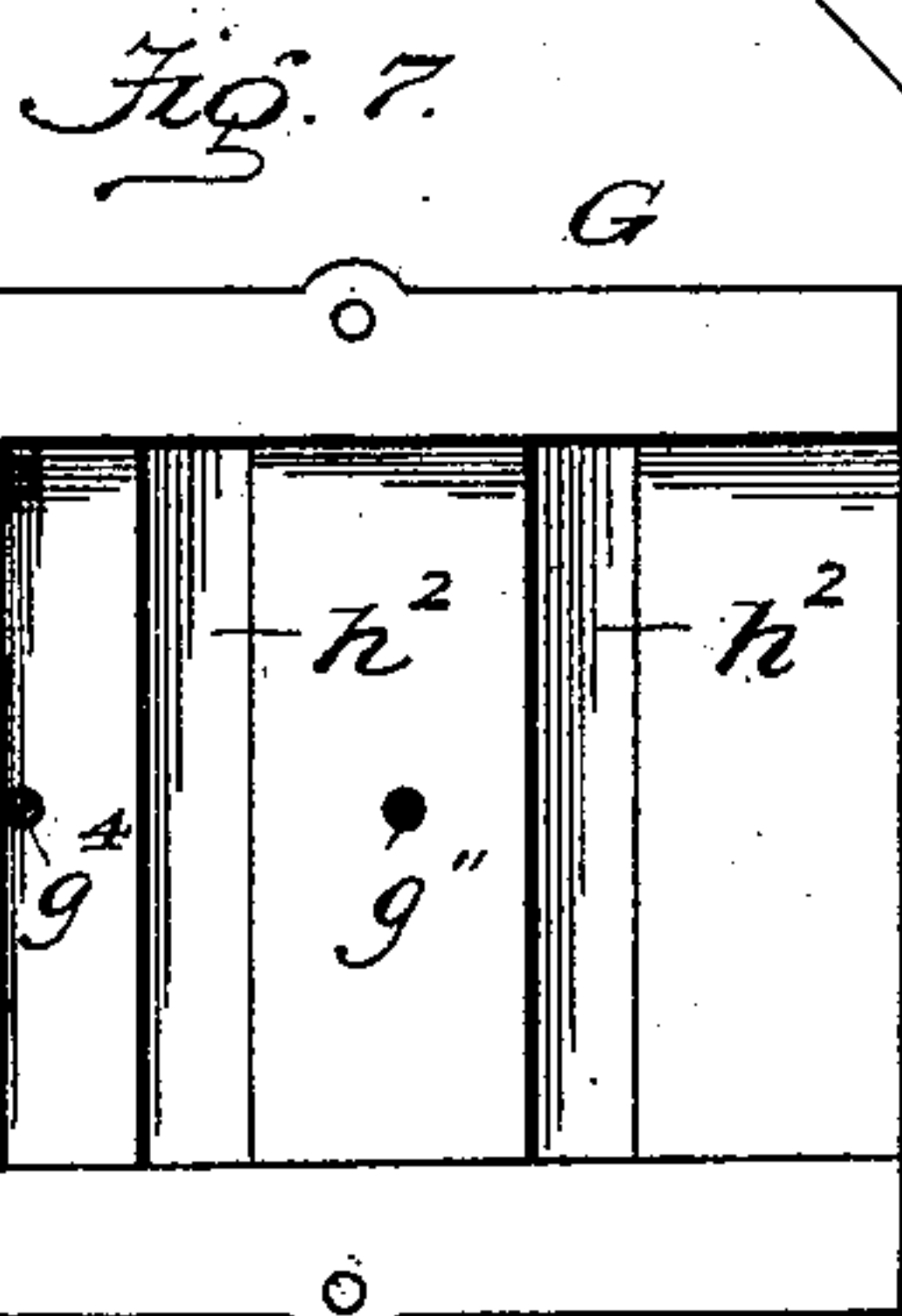
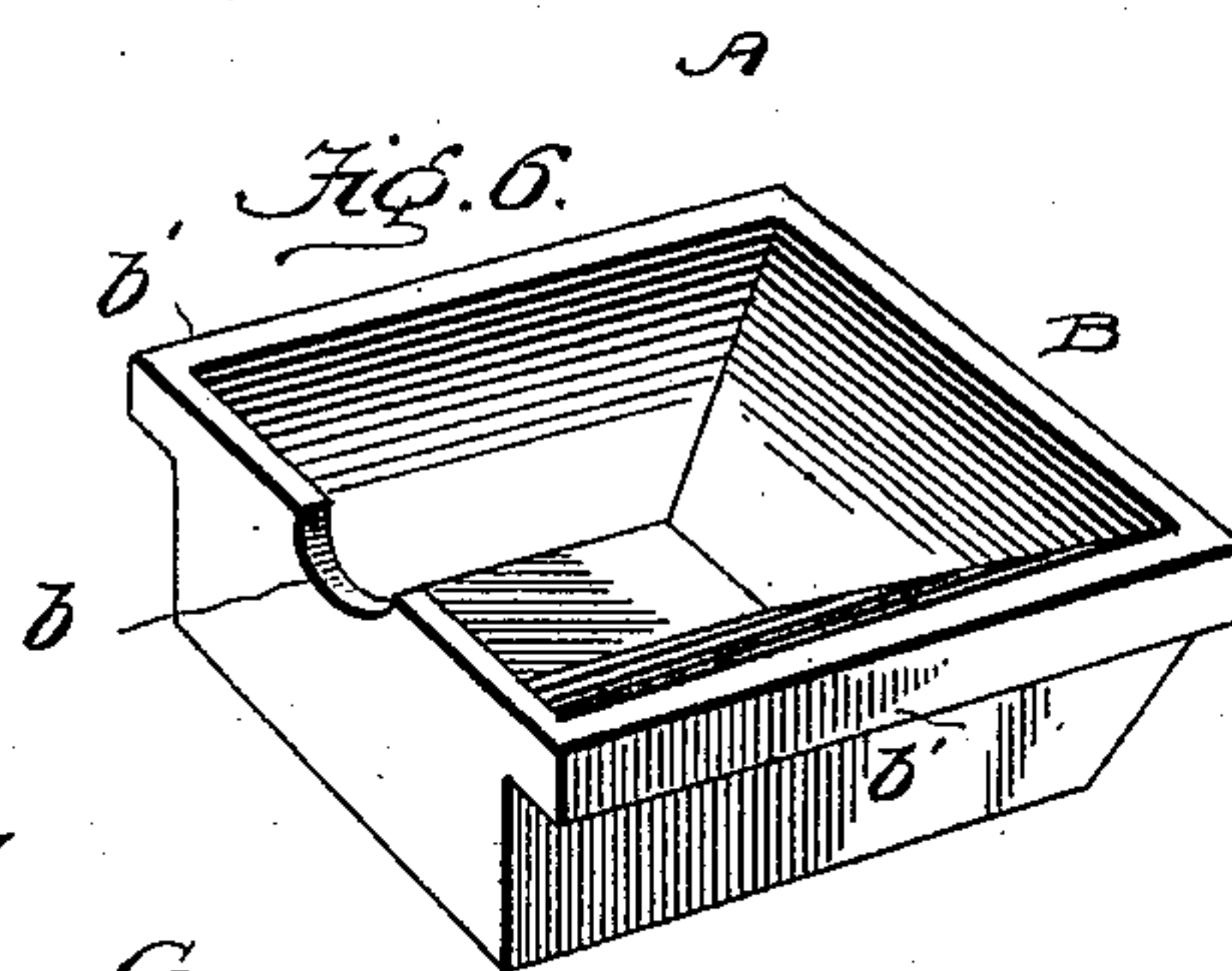
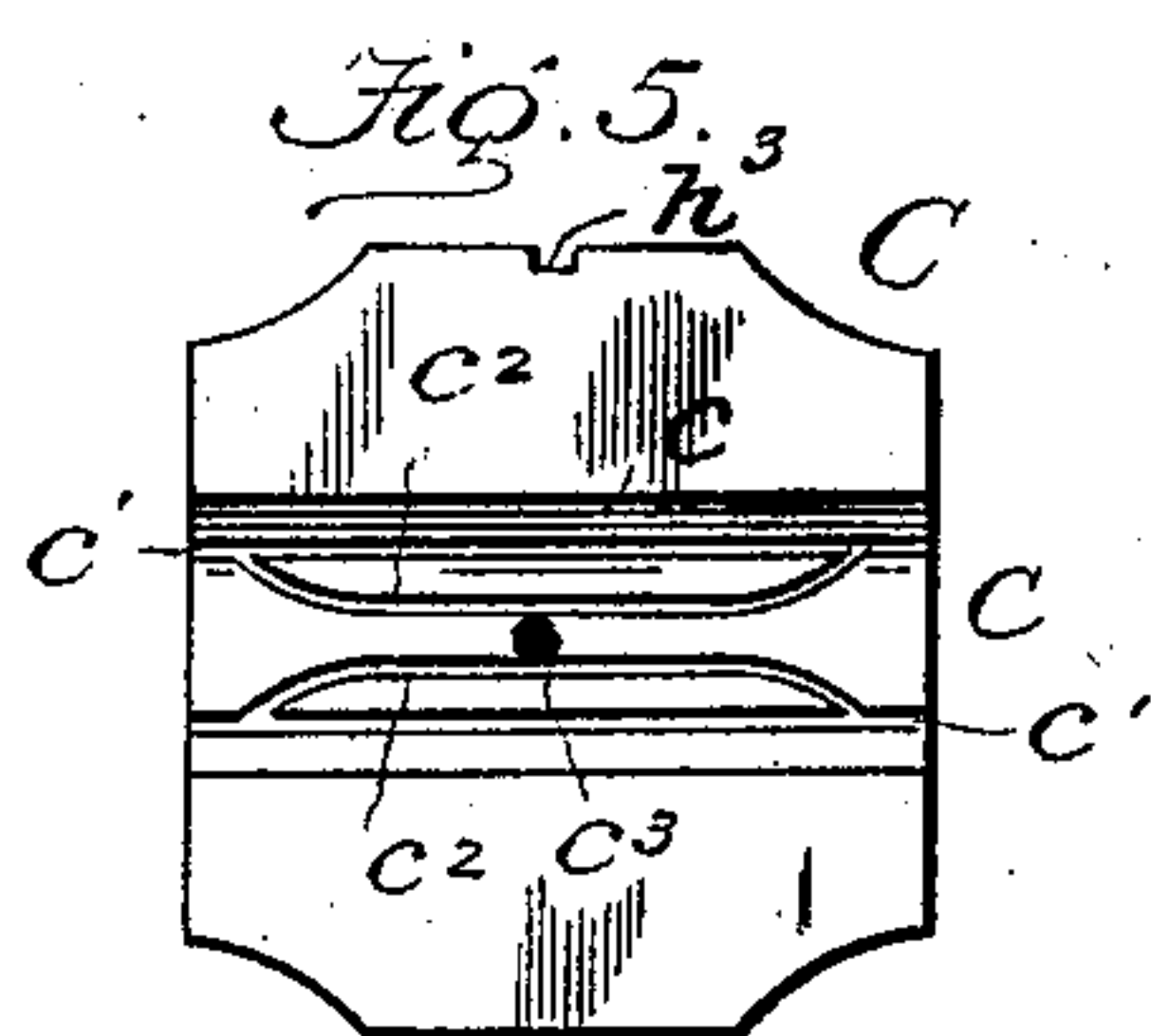
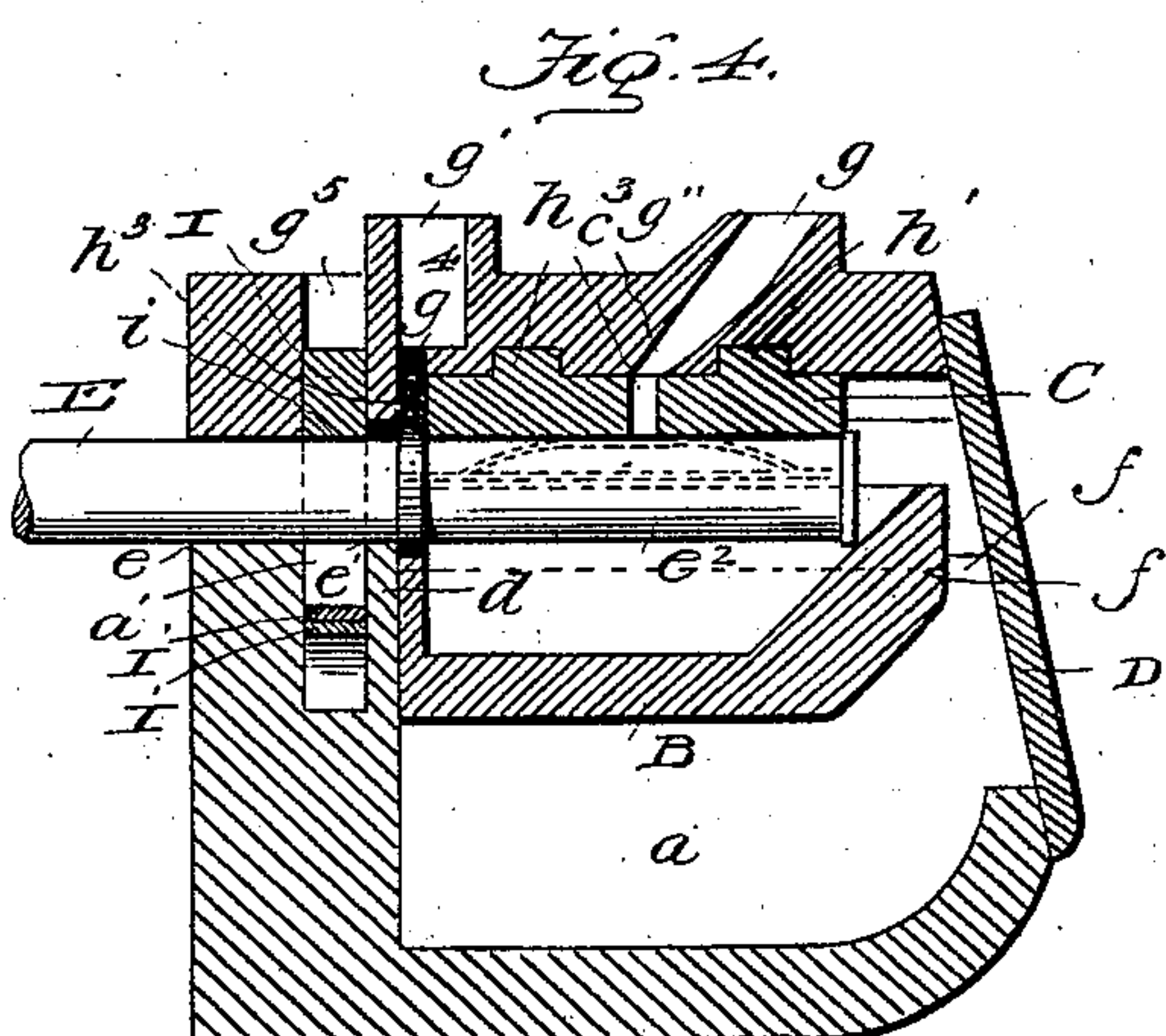
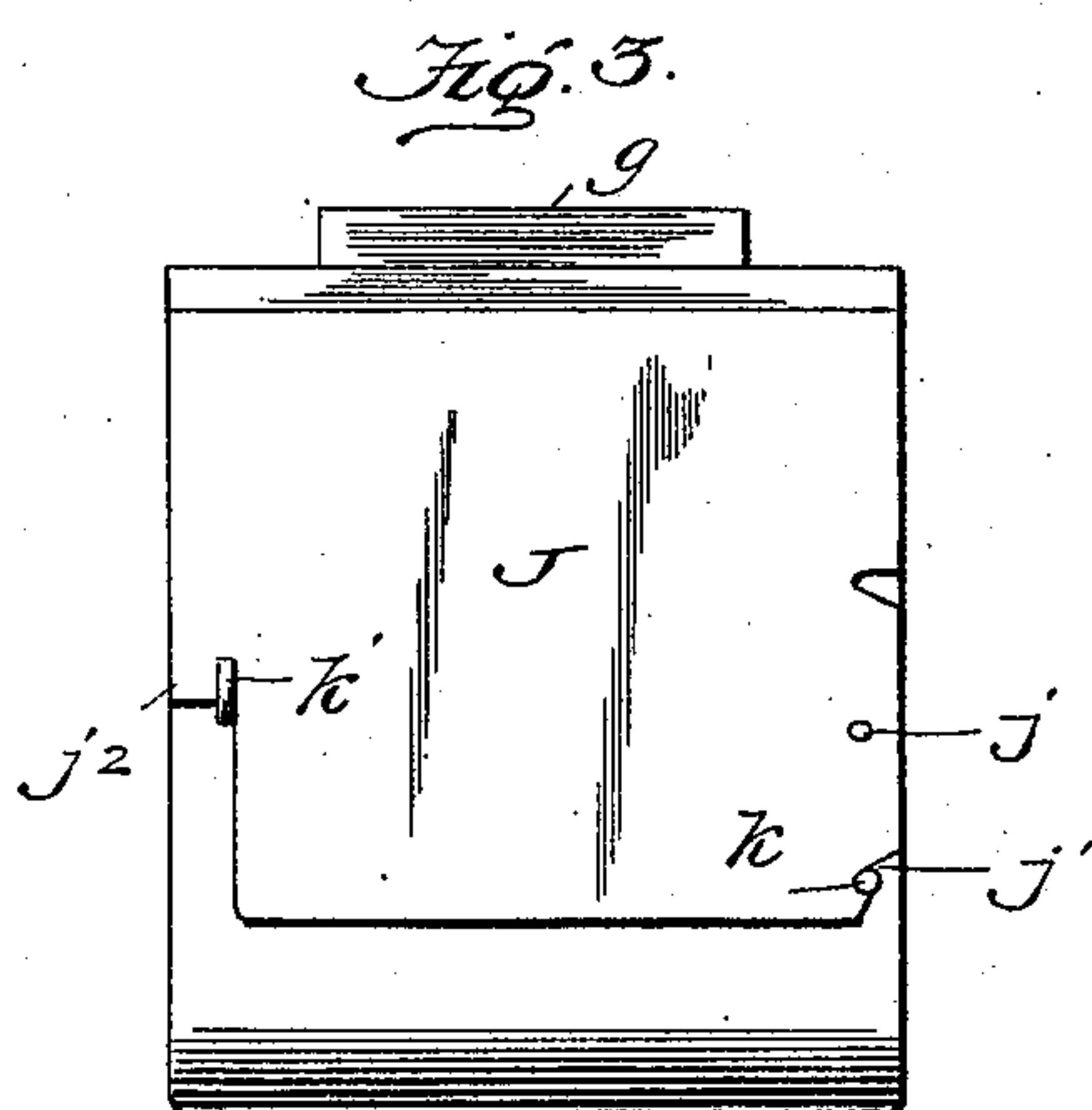
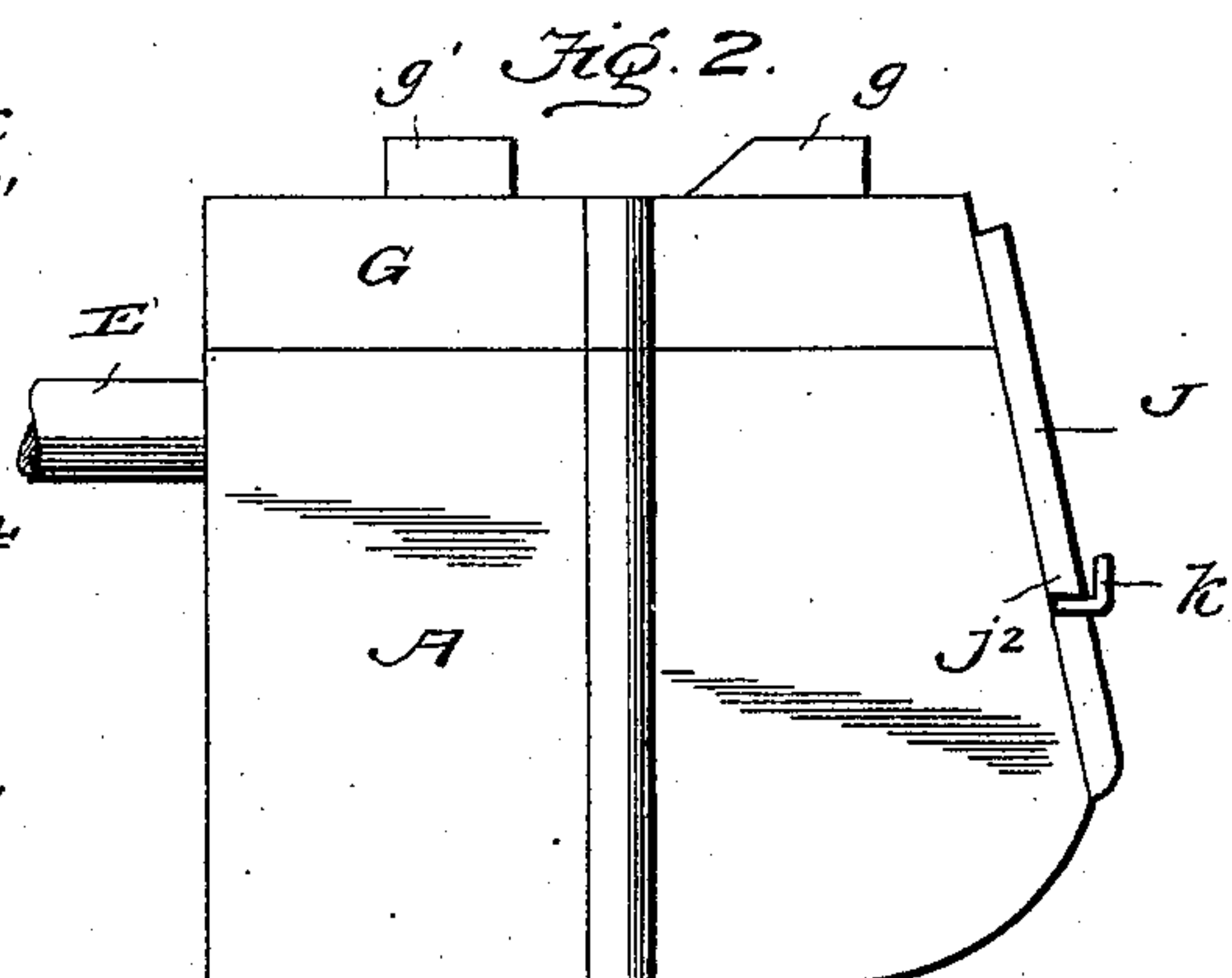
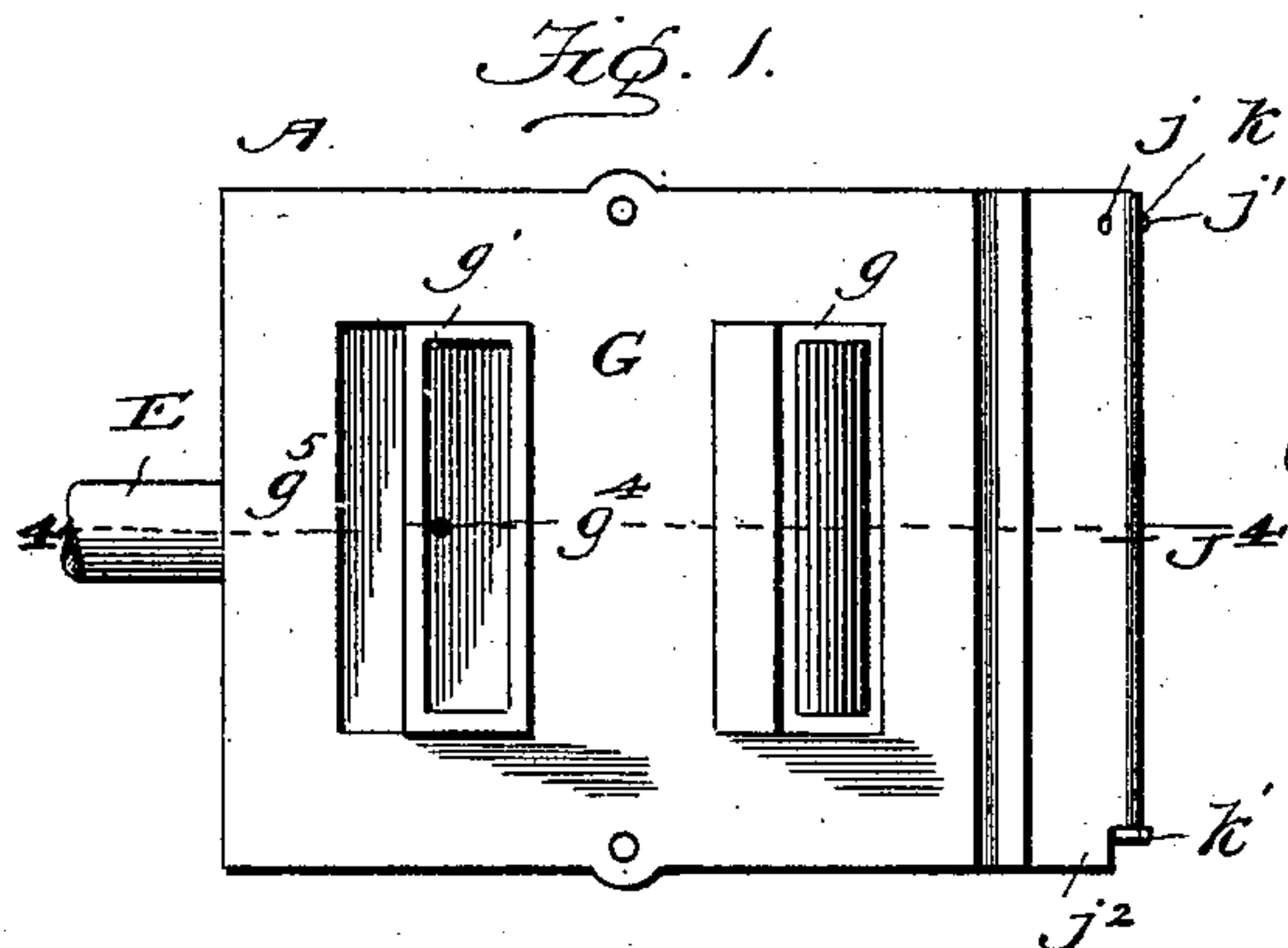


(No Model.)  
S. M. LAWRENCE & S. B. TARTER.  
CAR AXLE BOX.

CAR AXLE BOX.

No. 582,534.

Patented May 11, 1897.



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# UNITED STATES PATENT OFFICE.

SAMUEL M. LAWRENCE AND SAMUEL B. TARTER, OF LOUISVILLE,  
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## CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 582,534, dated May 11, 1897.

Application filed October 13, 1896. Serial No. 608,773. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL MILTON LAWRENCE and SAMUEL BENJAMIN TARTER, citizens of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Car-Axle Boxes; and we do hereby 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.

Our invention relates to improvements in car-axle boxes; and the object that we have in view is to provide a simple construction consisting of three principal parts and in which the oil or lubricant is supplied freely and uniformly to all parts of the axle-journal, the escape of lubricant from the box reduced to a minimum, and ready access is permitted to the interior of the box for inspection and repair.

With these and such other ends in view as pertain to a device of this character our improvements consist in the combination of devices and in the novel construction and arrangement of parts, as will be hereinafter fully described and claimed.

To enable others to understand our invention, we have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of a car-axle box constructed in accordance with our invention. Fig. 2 is a side elevation. Fig. 3 is an end elevation. Fig. 4 is a longitudinal sectional elevation on the plane indicated by the dotted line 4 4 of Fig. 1. Fig. 5 is a detail view of the journal-brass. Fig. 6 is a detail view of the oil-holder. Fig. 7 is a detail view in plan of the axle-box cover in an inverted position. Fig. 8 is a vertical cross-sectional view through a part of the axle-box to show the ledges on which rests the flanged oil-tray.

Like letters of reference denote corresponding parts in all the figures of the drawings.

Our car-axle box consists of three principal parts—i. e., the box proper, A, the oil-receptacle B, and the journal-bearing, or, as it is technically called, the “brass” C.

The box A resembles in general form the

well-known type of axle-boxes, but it is peculiarly formed to adapt it for service in connection with the oil-receptacle and the brass forming part of our improvements. The interior of the axle-box is divided vertically into two compartments *a a'* by the partition *d*, situated near the inner end of said box and cast therewith, so that the compartment *a* is of larger capacity than the compartment *a'*. The outer end of said box is open from nearly the bottom to the top thereof, and said open outer end of the box slopes upwardly and inwardly from the bottom toward the top, as is usual. Said open sloped end of the box is adapted to be closed by a lid J of a peculiar form, hereinafter described.

The inner wall of the axle-box and the partition *d* therein are formed with notches or recesses *e e'*, which are coincident with each other and through which passes the axle E, the journal *e<sup>2</sup>* of which lies within the compartment or chamber *a* of the axle-box.

The axle-box A has the ways or ledges *f* provided on the sides of the compartment or chamber *a* thereof, and these ledges *f* extend horizontally from the partition *d* to the outer open end of said box, the outer ends of said ledges terminating in the lugs *f'*, that rise from said ledges for a purpose to be explained.

The oil-receptacle B is cast in a single piece in the form shown by Fig. 6. Said receptacle has a chamber, the side walls and one end wall of which slope from the bottom outwardly, while the other end wall is vertical. The holder is open at its top side and the vertical end has a notch *b*, through which passes the axle E. At the sides of the holder B are the integral horizontal flanges *b' b'*, which extend longitudinally of the receptacle, and said receptacle and its flanges are so proportioned that it can fit snugly in the chamber *a* of the box, so that the flanges *b'* of the holder rest upon the ledges *f* of the box, whereby the holder is removably suspended within the axle-box. The axle-journal extends through the oil receptacle or holder B, and when the holder is properly filled with oil the lower side of the journal is immersed in the oil, thus insuring full and complete lubrication to the lower side of the axle-journal.

The journal-brass C is, like the axle-box and



the oil-holder, cast in a single piece of metal, and said brass is proportioned and shaped to fit snugly within the upper part of the chamber *a* of the axle-box and to rest upon the oil-holder and the axle-journal.

The lower face or side of the brass *C* has a transverse curved recess *c* to enable the brass to fit snugly to the upper side of the axle-journal, and in this recessed face of the brass is produced the straight oil-ducts *c'* *c'* and the curved oil-ducts *c<sup>2</sup>* *c<sup>2</sup>*. In the brass is a central oil-hole *c<sup>3</sup>*, which lies midway between the straight parallel oil-ducts *c'* *c'*, and the curved ducts *c<sup>2</sup>* *c<sup>2</sup>* are bowed or arranged to communicate with the central oil-hole *c<sup>3</sup>* and to open into the straight ducts *c'* *c'*, the ends of which ducts *c'* extend through the edges of the brass, as shown by Fig. 5.

It will be seen that the oil supplied to the central feed-hole *c<sup>3</sup>* spreads or flows through the curved ducts *c<sup>2</sup>* *c<sup>2</sup>* and from thence to the straight ducts *c'* *c'*, and thus the oil is supplied and distributed uniformly and freely over the top surface of the axle-journal to insure thorough lubrication of the same.

The top *G* of the axle-box is cast in a separate piece in a way to provide for supplying the lubricant to the brass *C* without removing the top *G*. To effect this result, the top *G* has the hollow raised bosses *g* *g'* cast on the top surface thereof, and these bosses are open at their upper ends to enable the operator to supply oil from an oil-can to the chambers or open spaces formed by the hollow bosses *g* *g'*. One of these bosses *g* is inclined somewhat, and the top has a feed-orifice *g''*, which is so arranged that when the top is secured in place the orifice *g''* registers or coincides with the feed-hole *c<sup>3</sup>* in the brass, thus providing for the flow of oil through the top *G* to the bottom side of the brass *C*.

To prevent the oil from spreading over the top surface of the brass or between the brass and the top, as well as to insure the proper feed of oil from the orifice *g''* in the top to the hole *c<sup>3</sup>* in the brass, the top and brass are joined together against the spread of oil in the direction of the length of the axle-box by forming ribs or flanges *h* *h'* on the top surface of the brass and by grooves or channels *h<sup>2</sup>* *h<sup>2</sup>* on the inner side of the top, said ribs or flanges fitting in the grooves *h<sup>2</sup>*, as shown.

It will be noticed that the grooves and flanges are arranged on opposite sides of the oil-holes *c<sup>3</sup>* *g''* in the brass and box-top and that the flanges fit tightly in the grooves to arrest the escape of oil toward the ends of the axle-box. In the vertical face at the inner end of the axle-box is provided a notch or recess *h<sup>3</sup>*, to which oil from the hollow boss *g'* is supplied through the oil-hole *g<sup>4</sup>*, which opens into the chamber of said boss *g'*, and which is positioned to coincide with the recess or notch *h<sup>3</sup>*. Said recess or notch directs oil upon the collar of the axle-journal, as shown by the drawings.

The top *G* of the axle-box is fastened se-

curely in place by bolts or any approved style of fasteners.

To arrest the escape and waste of oil from the inner end of the axle-box, we provide a baffle-plate *I*, which fits in the compartment *a'* of the box. This baffle-plate occupies a snug position between the inner end wall of the axle-box and the partition *d* therein, and said plate has a vertical recess or notch *i* cut in the lower edge thereof to enable said plate to straddle the axle-journal, whereby the parts are fitted together snugly. The baffle-plate plays freely up and down in the axle-box to move with the axle and journal thereof, and said plate rests or is seated upon the springs *I' I'* in the bottom of the compartment *a'*, while the upper end of said plate is fitted to play in the opening or slot *g<sup>5</sup>* in the top *G*, as shown.

The outer open end of the axle-box is designed to be closed by means of the lid *J*, which is constructed and arranged to swing in a plane at right angles to the longitudinal axis of the box *A* and to lock itself automatically and positively when adjusted to close the open end of said box *A*. Said lid *J* is pivoted eccentrically and near one edge to a side of the axle-box *A*, as at *j*, and in said edge below the pivot is formed a notch *j'*, while the other edge of the lid is provided with a shoulder *j<sup>2</sup>*, formed by cutting away a part of the edge of the lid. In the end of the axle-box below where the pivot *j* is fastened is a fixed pin *k*, while on the opposite side wall of the axle-box is fastened an L-shaped keeper *k'*. The pin *k* and the keeper *k'* are positioned to fit in the notch *j'* and against the shoulder *k<sup>2</sup>*, respectively, when the lid *J* is closed across the open end of the axle-box, and said keeper also bears against the outer face of the lid to prevent lateral displacement thereof and to relieve the pivot *j* from strain should the lid be forced in a direction laterally away from the end of the axle-box.

It will be observed that the lid may be turned on its pivot *j* edgewise in a direction at right angles to the length of the axle-box, so as to occupy a position at one side of the same and expose the open end of the box for easy access thereto, and it will also be seen that when the lid is turned to close the box it is automatically and positively locked by the fixed pin and the keeper.

It is thought that the operation and advantages of our improved axle-box will be readily understood from the description, taken in connection with the drawings.

We are aware that changes in the form and proportion of parts and in the details of construction may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of our invention.

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

1. A car-axle box having an open front end, a plate-like lid pivoted near one edge to said



box to swing edgewise in a plane at right angles to the length of the box and provided with a notch in the edge below the pivot and with a shoulder in the opposite free edge thereof, a pin fixed to the axle-box below the pivot of the lid, and a keeper attached to the axle-box to engage the shoulder in the lid when it is closed, as set forth.

2. A car-axle box having its top provided with an oil-chamber, a feed-orifice and grooves situated on opposite sides of said feed-orifice, combined with a journal-brass having ribs or flanges which fit in said grooves of the top to

prevent the spread of oil between the box-top and said brass, the journal-brass also provided with distribution-channels on the lower concave face thereof and with a feed-opening which is in alinement with the feed-orifice of the box-top, as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

S. M. LAWRENCE.

S. B. TARTER.

Witnesses:

T. J. MORRISON,

J. M. SCOTT.