

(No Model.)

H. STILL.
CAR AXLE BOX.

No. 353,647.

Patented Nov. 30, 1886.

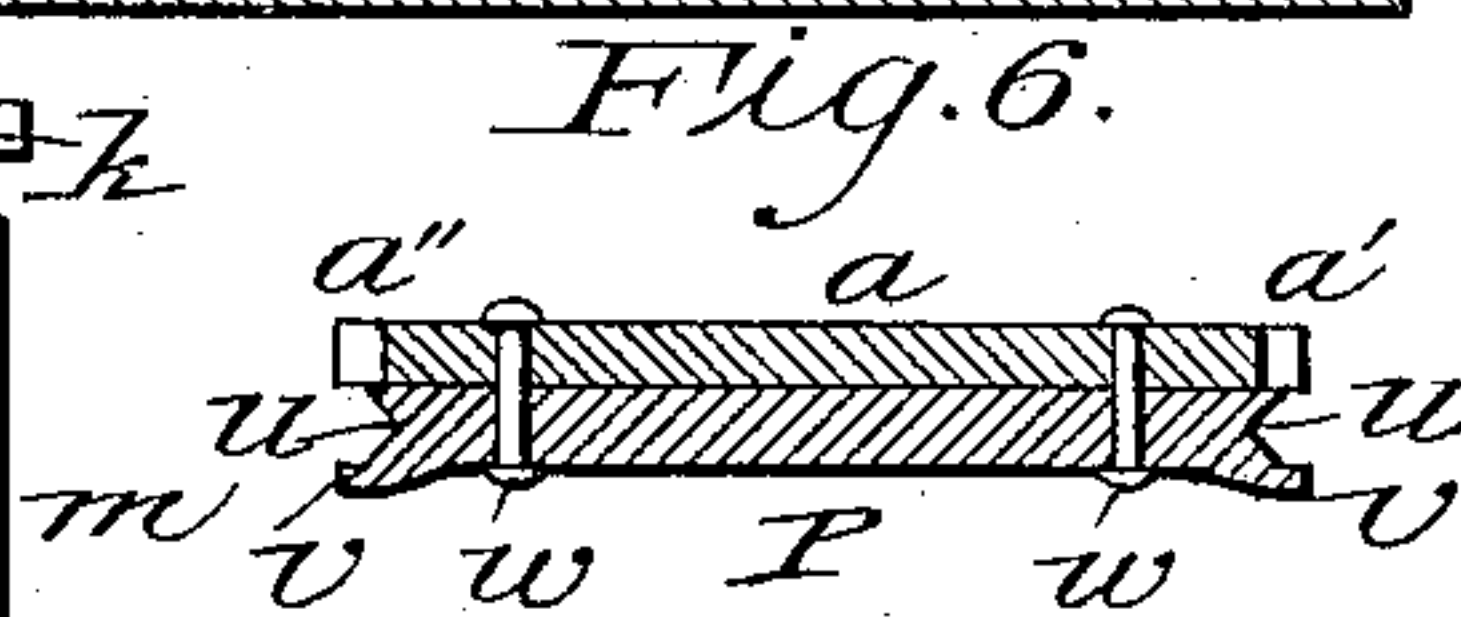
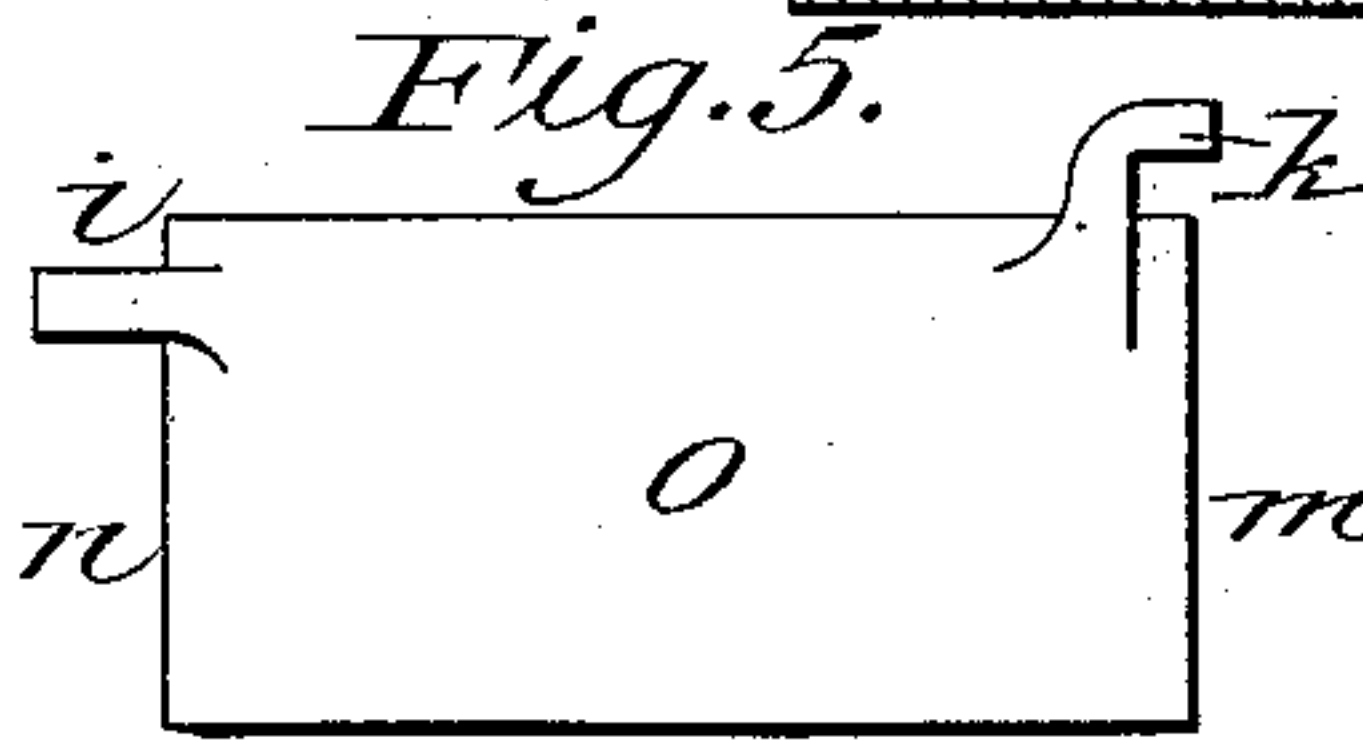
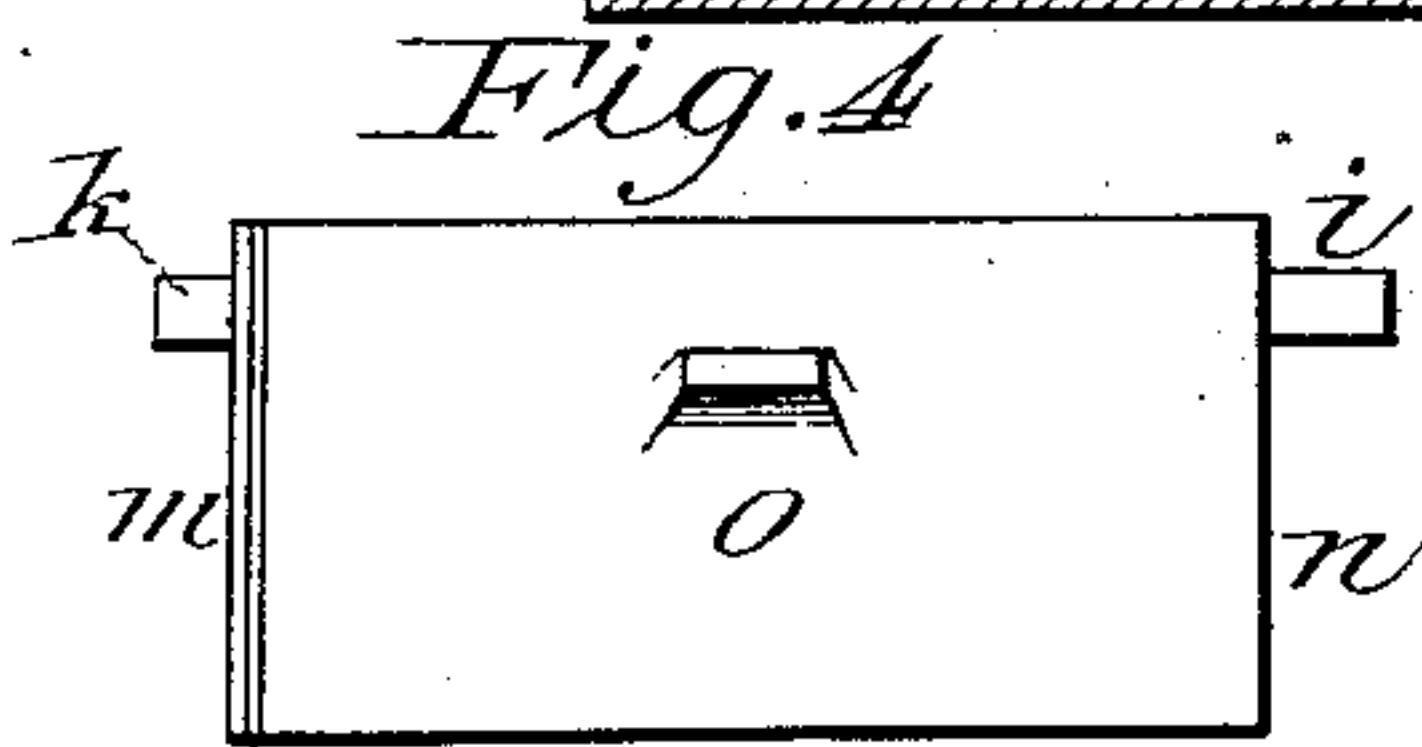
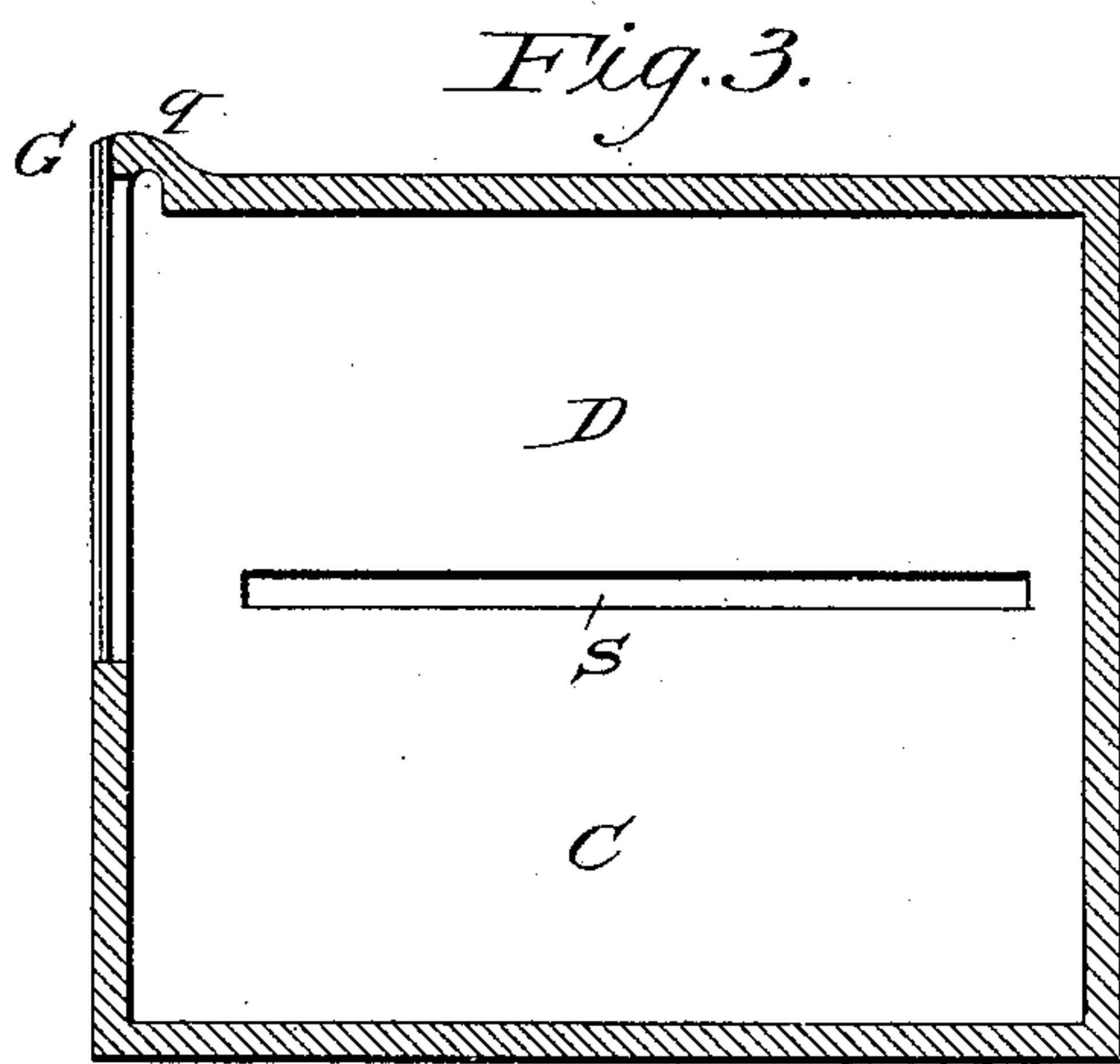
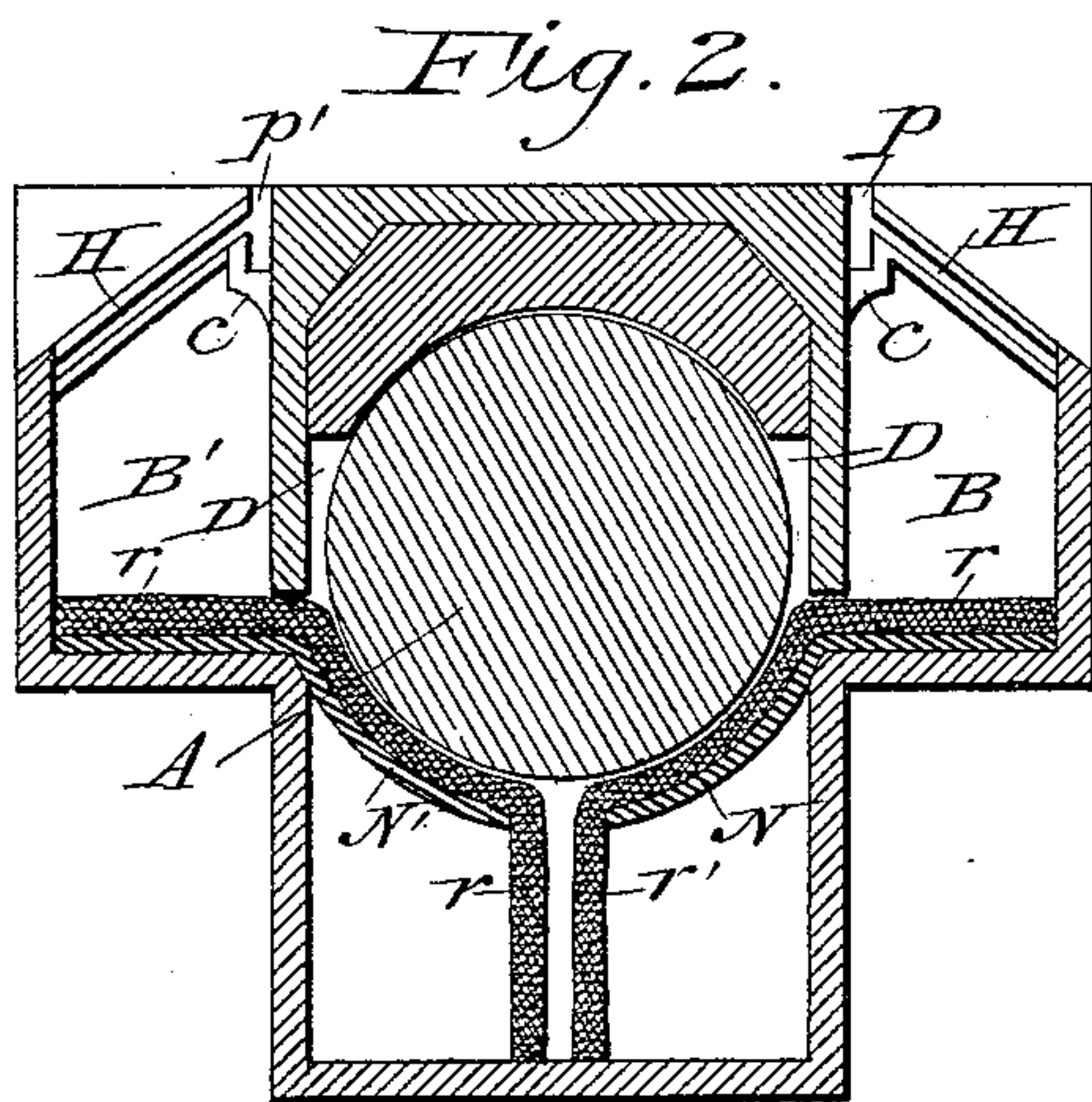
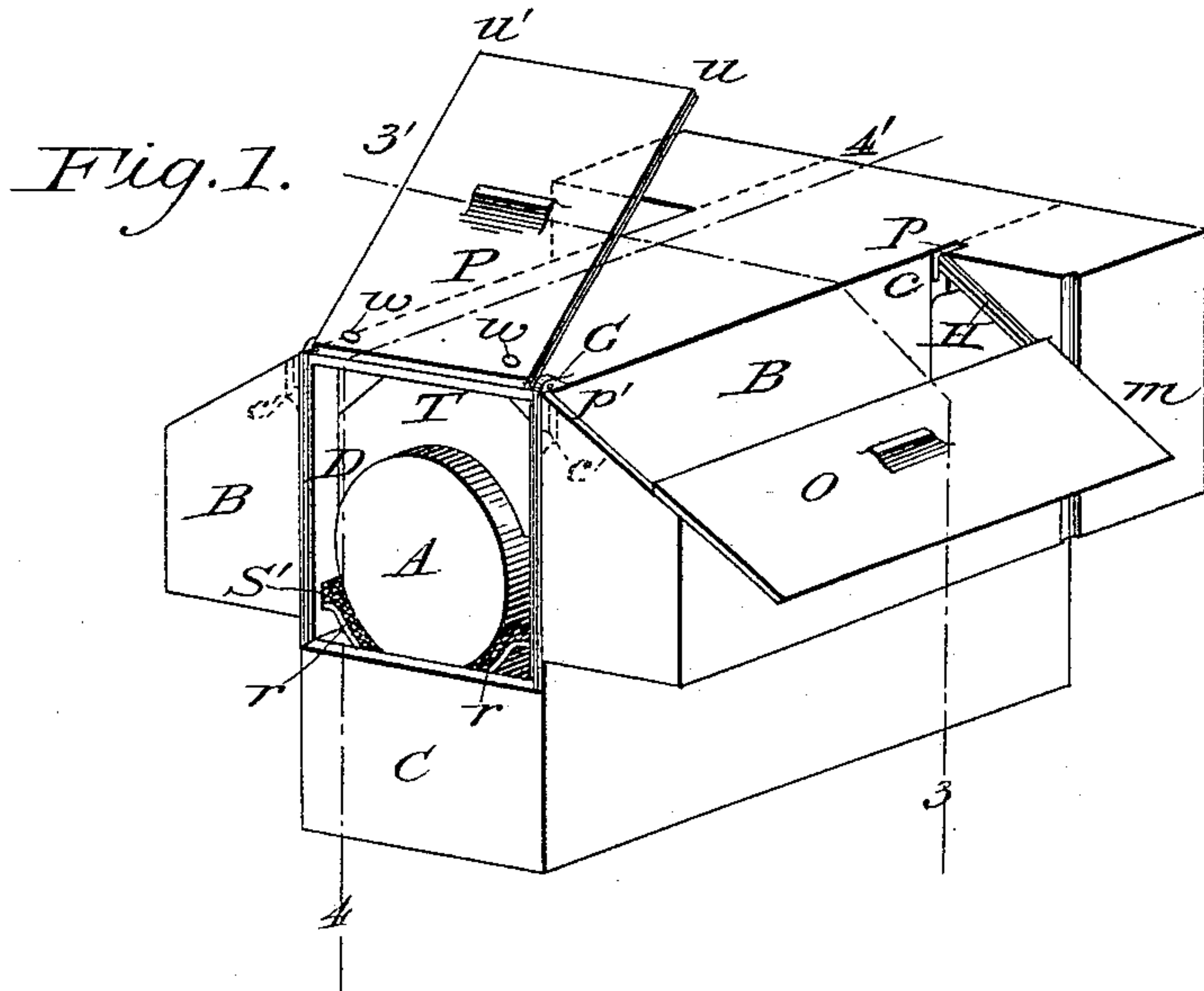
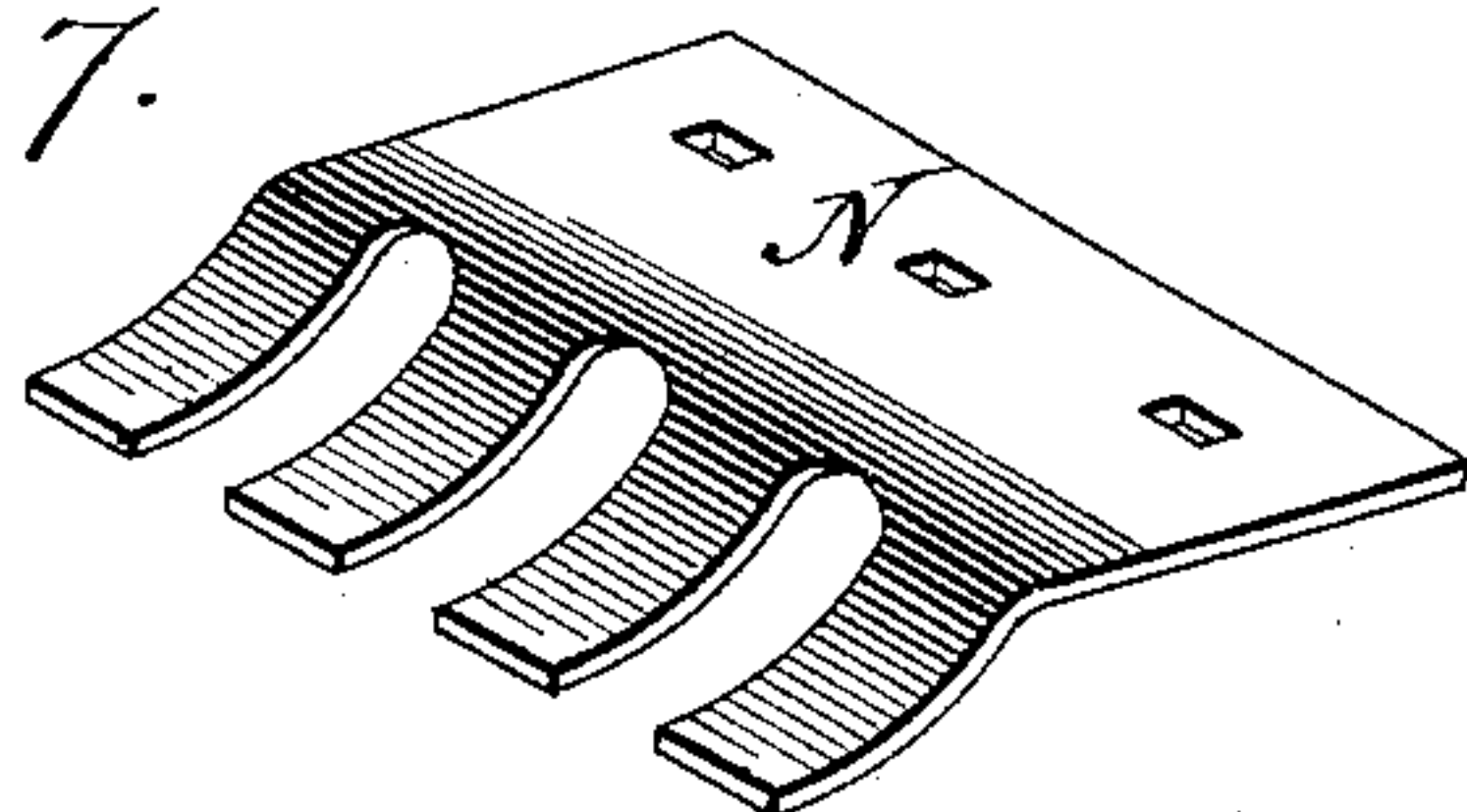


Fig. 7.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY STILL, OF BELOIT, KANSAS.

CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 353,647, dated November 30, 1886.

Application filed February 1, 1886. Serial No. 190,418. (No model.)

To all whom it may concern:

Be it known that I, HENRY STILL, a citizen of the United States, residing in Beloit, in the county of Mitchell and State of Kansas, have
5 invented a new and useful Axle-Box for Railway-Cars, of which the following is a specification.

My invention relates to improvements in the ordinary axle-box of cars now in use, and
10 is intended as a remedy for hot boxes. I am aware that there are devices constructed to attain the same end, but without success, as indicated by general railway experience. By my improvements is prevented the great destruction of cotton waste, or other material
15 holding the lubricant in store. This destruction is mainly caused by the front end of the journal through the lateral or side motions of the car impacting the waste against the front
20 end and cap of the box, destroying its resiliency and capillarity, and thereby depriving the rear end of the journal of the means of lubrication. This is the chief cause of "hot boxes" upon trains. My improvements will
25 reduce the liability of hot boxes to a minimum point by keeping a full supply of lubricant upon the entire length of the journal. They also make the lubricant available in any temperature, and carry it to the journal free
30 from dust, grit, or other impurities. These improvements are very simple in construction, with little liability to become defective or to get out of order, easily repaired when in such condition, and easily replenished, effective,
35 and inexpensive, both in first cost and in required supplies, permitting but slight, if any, waste of lubricant, which in the boxes now in use is a great loss. I attain these and other beneficial results by the mechanism illustrated
40 in the drawings accompanying this instrument, and which, in brief, consists of two lateral oil-chambers cast in the upper half of a car-axle box upon each side of the journal, connecting such oil-chambers with a lower oil-
45 cellar situated under the journal, as in the common box, by means of waste or wick in such a manner as to conduct the lubricant along the whole length of the under side of the
50 journal.

Figure 1 is an isometrical view of my inven-

tion, showing the front end, the right side, and the top of the box with the journal and journal-bearing in position, the front door, and the lid or cap of the right-hand oil-chamber partially open. Fig. 2 is a vertical sectional view
55 upon line 3 3', Fig. 1. Fig. 3 is a full sectional view of the partition on line 4 4', which forms the inner wall of lateral oil-chamber B, and lateral wall of journal-space D, as well as lateral wall of oil-cellar C. Fig. 4 is the upper
60 side of the cap or lid covering the opening to lateral oil-chamber B, and Fig. 5 is the under side of the same cap. Fig. 6 is a horizontal section of front door with its lock-bar *a* and projecting ends *a'' a'*. Fig. 7 is a perspective
65 view of the finger-bar or plate which supports the material conveying lubricant to the journal.

Similar letters refer to similar parts of the box throughout the several drawings, and the
70 description of one of the lateral oil-chambers applies to both.

The box (perhaps more correctly called the "car-axle guard") is attached to the truck-frame by any of the ordinary methods, and
75 should be cast entire, save the openings described and the rear opening for entering the journal, its length about one inch more than that of the journal and the journal-space barely wide enough to accommodate the journal-bearing.
80 ing.

B is the lateral oil-chamber. Through the inner wall of this chamber is aperture S, made flush with the bottom of said chamber B, and in length to conform with the length of the
85 journal-bearing, allowing a trifle for the play of the journal. Through aperture S passes the finger-bar N, which finger-bar is fastened at one edge by bolts or rivets to the bottom of the oil-chamber B, having rubber or other
90 packing beneath it to prevent the escape of oil through aperture S on the under side of the finger-bar. Finger-bar N is made of steel or other elastic metal, with the fingers adjusted to fit the arc of the journal. I prefer
95 to have the fingers made in this form, for by it is obtained the proper degree of elasticity to hold the wick pliantly against the journal, allowing a free circulation of the lubricant when the journal is not in motion, and there-
100

by preventing the gumming of the wick. I do not, however, confine myself to this one form of finger-bar, but may employ a plain sheet or other form that will confine against the journal any substance having capillarity. The remaining space of said aperture is filled with wick *r r*. One end of the wick is fastened in the oil-chamber B, and the other passes over the finger-bar N and drops into the oil-cellar C. By this arrangement no lubricant can pass from chamber B into cellar C, except through wick *r* over finger-bar N, and must in the passage come in contact with the journal. The finger-bar is made of any thickness that will not interfere with its elasticity.

O is a lid or cap covering the opening in oil-chamber B, through which opening repairs of finger-bar are made and lubricants supplied to the chamber. It is made of any desired thickness, its rear edge square with the face, with lug *i* projecting from its under surface and extending beyond the rear edge, *n*, so as to follow in slot H. The front edge, *m*, is also square with the face, with lug *k* open; its under surface extending downward sufficiently to clasp a rib or projection upon the front inner end of the chamber B. The cap is held in place, when closed, by the lugs *i k* dropping behind the catches *c c'*. These caps are placed in position upon the box before the same is fastened to the truck-frame, and cannot be removed while the frame is intact, because of the covering of the slot *p* by the bar supporting the truck-frame, through which the lug *i* is entered. I prefer to construct these openings sloping at about an angle of twenty degrees, instead of horizontally or perpendicularly, the better to enable workmen to reach the bottom of the chamber for repairs. To open this cap it is necessary, first, to release lugs *i* and *k* from catches *c c'* by a perpendicular movement, then forcing the lug *i* into groove H by a lateral and forward movement. The door P, covering opening in front end of the central portion of the box, is constructed with grooves *u u'* upon its vertical edges, which grooves follow in beveled edges to correspond cast in the face-plate of the front end. Upon the back side of the door P is secured by bolts or rivets the stop-rod *a*, with shouldered ends *a' a''*. The shouldered ends slide upon the inner face of said front plate or door-jamb, and are intercepted, when raising the door, by loop G, whereby a hinge is formed by which the door will fall back into a horizontal position upon the top of the box, and which will hold the door to the box, preventing its removal so long as the bar *a* and shouldered ends *a' a''* remain perfect. The bar may be attached to any desired part of the door-plate. I prefer it at or near the bottom, whereby a free access may be had to the gib and journal for replacing journal-bearings, &c.

To put the door P in place, the rod *a* is first put within the jamb; then the door is inserted

in the groove *q* at the top of the box, moved downward, and then bolted or riveted to the bar *a*. The rear lip in the groove of the door-plate behind the ends *a' a''* must be cut away, so that the door may recline, else the corresponding face of the chamfer in the jamb would prevent such movement. Over such space I construct lip *v v* upon the door-face to keep out dust, water, &c., and to be a ready guide in returning the door to its place from a horizontal position. The combined dimensions of the lateral oil-chambers must not exceed in holding capacity that of the cellar C, else there might be a waste of oil.

The operation of my invention may be understood from the foregoing, yet it will perhaps be well to say that a supply of oil being placed in chambers B B, it is by gravitation drawn through the opening S into the cellar C. In its passage it follows the wicks *r r'*, which are held by the finger-bar N, against the journal A. The journal, when in motion, will take up only such quantity as it may require, and the remainder will pass on to the cellar C, where it will be held in store until the volume in B B' is exhausted, when, through the capillary power of the wicks, it will be returned to the journal till the supply is exhausted. The wicks filling the aperture S S' act as a filter to the lubricant, preventing dust, grit, and other impurities from passing out of the oil-chambers to the journal. Likewise the impurities in the cellar C cannot be drawn up, because of their specific gravity. The wick being attached to the finger-bar N, and extending the full length of the journal-bearing, and within the shoulders or flange of the journal, cannot by any lateral motions of the cars be disarranged, but will supply lubricant to the whole length of the journal as long as the supply lasts. The finger-bars will yield to all abrupt motions of the journal, and through their elasticity at once return to place, thus keeping the wicks always in position. The oil-chambers being in such near proximity to the journal-bearing, sufficient heat will be generated by its friction to liquefy the lubricant in the coldest weather. In case of destruction of the wick by wear or accident, the same can readily be replaced through chambers B B'.

What I claim as novel, and desire to secure Letters Patent upon, is—

1. A car-axle box consisting of the following elements in combination: independent oil-chambers located on each side of the journal, and having lateral apertures above the lowest element thereof, and a separate oil compartment or cellar located intermediate said chambers and directly beneath the journal, to receive the excess of lubricant, as and for the purposes described.

2. An axle-box having lateral oil-chambers B B', in combination with plate or finger-bars N N', communicating with the journal through apertures S S'.

3. In an axle-box, lateral oil-chambers B B', in combination with apertures S S' and finger-bars N N', connected with a lower oil-cellar, C, by means of material having capillarity,
5 substantially as described.

4. In a car-axle box, the door P, in combination with stop-rod *a*, ends *a'* *a''*, and loop G, as set forth.

5. In an axle-box, the sliding cap O O' and lugs *k* and *i*, in combination with slots *h* and *p* and catches *c c'*, substantially as set forth.

HENRY STILL.

Witnesses:

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