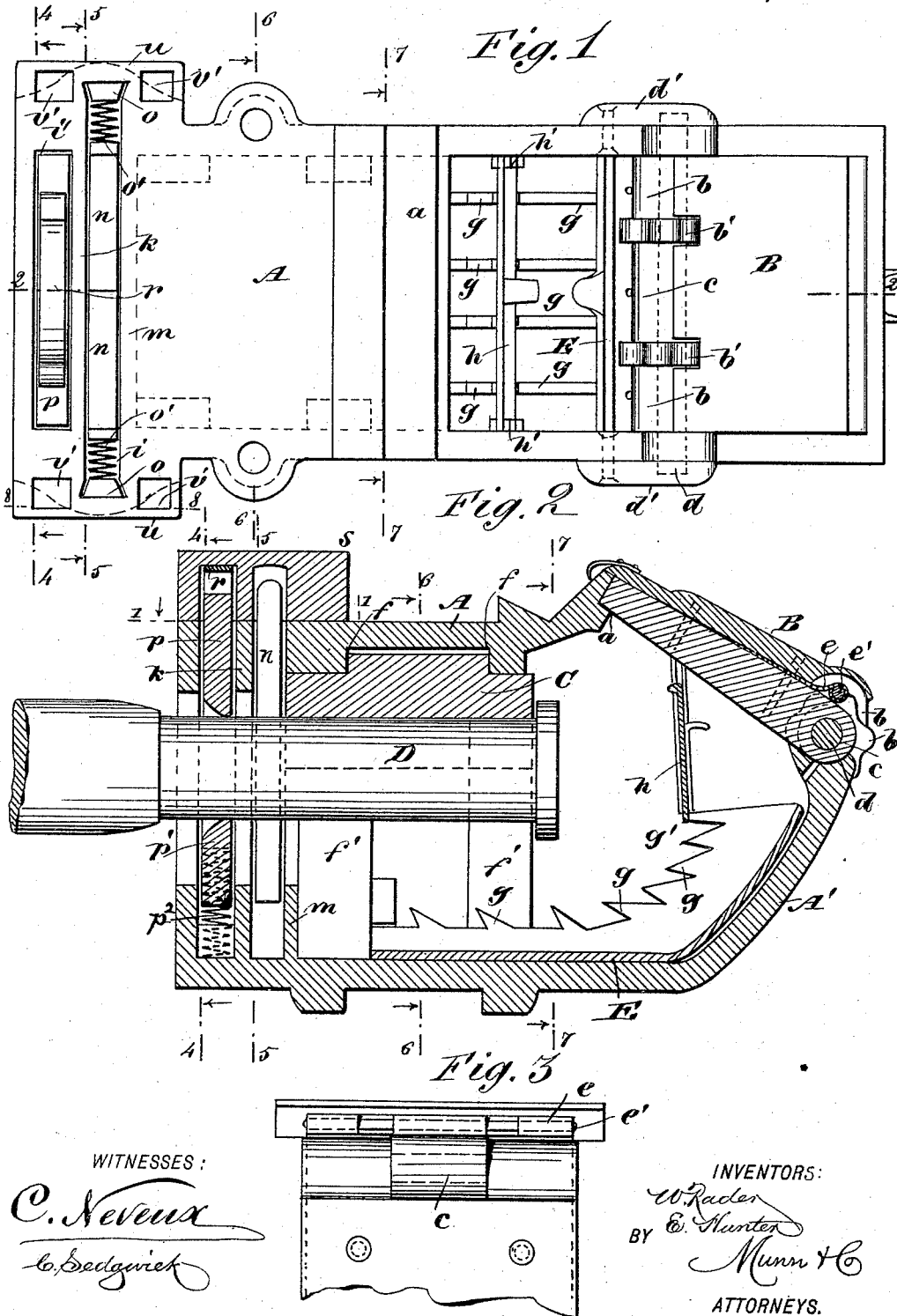


W. RADER & E. HUNTER.
CAR AXLE BOX.

No. 492,231.

Patented Feb. 21, 1893.



WITNESSES:

C. Neveux
C. Sedgwick

INVENTORS:

W. Radler
E. Hunter
BY Munn & Co.
ATTORNEYS.

W. RADER & E. HUNTER.
CAR AXLE BOX.

No. 492,231.

Patented Feb. 21, 1893.

Fig. 4

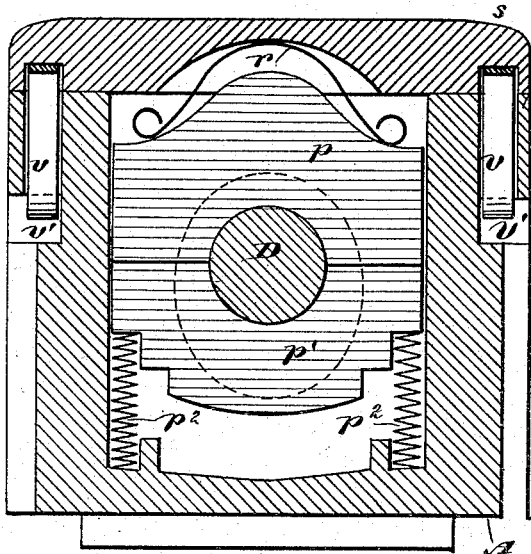


Fig. 6

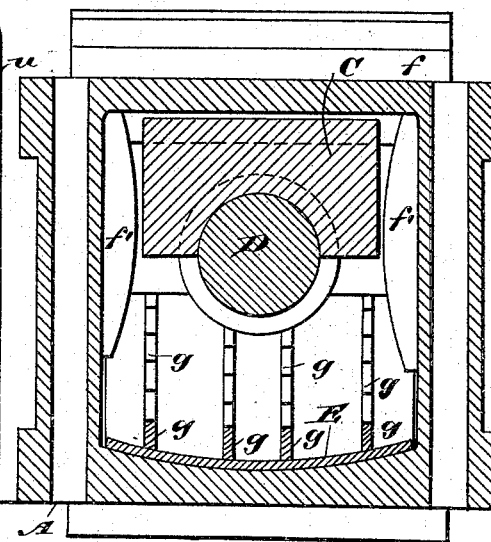


Fig. 5

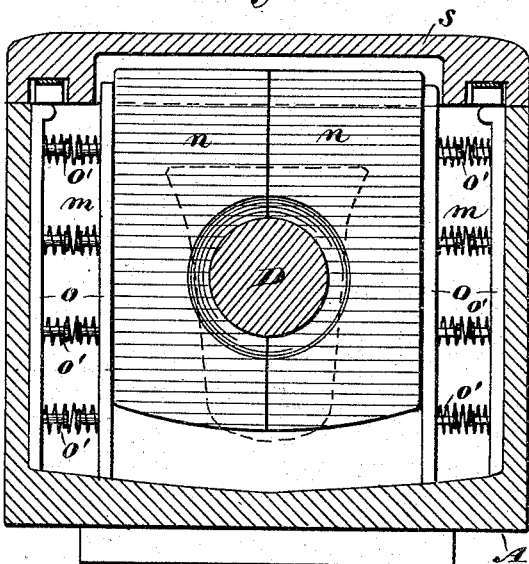
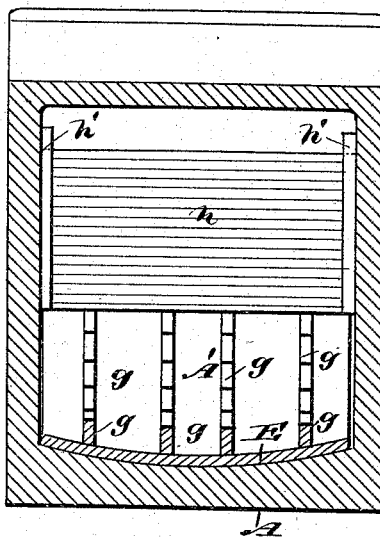


Fig. 7



WITNESSES:
C. Neveu
C. Badgwick

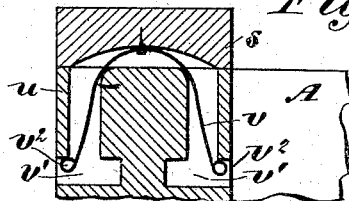


Fig. 8

INVENTORS:
W. Rader
BY *E. Hunter*
Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM RADER AND EDWIN HUNTER, OF ALLENTOWN, PENNSYLVANIA.

CAR-AXLE BOX.

SPECIFICATION forming part of Letters Patent No. 492,231, dated February 21, 1893.

Application filed May 16, 1892. Serial No. 433,118. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM RADER and EDWIN HUNTER, both of Allentown, in the county of Lehigh and State of Pennsylvania, have invented a new and useful Car-Axle Box, of which the following is a full, clear, and exact description.

This invention relates to improvements in car axle boxes, and has for its object to provide such a device with an improved sponge holder, a novel spring closer for the lid of the box, and improved means to restrain the escape of oil from the box at its inner side.

To these ends, our invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a top view of the box with its lid opened and parts removed on the line 1—1 in Fig. 2; Fig. 2 is a longitudinal section on the line 2—2 in Fig. 1, showing a portion of an inserted axle, and with the lid closed; Fig. 3 is a broken inner side view of the lid of the box, showing its hinge joint; Fig. 4 is a transverse section on the line 4—4 in Figs. 1 and 2; Fig. 5 is a cross section on the line 5—5 in Figs. 1 and 2; Fig. 6 is a transverse section on the line 6—6 in Figs. 1 and 2; Fig. 7 is a cross section on the line 7—7 in Figs. 1 and 2; and Fig. 8 is a broken sectional view of a detail of construction on the line 8—8 in Fig. 1.

The box body A, is preferably cast from metal, and is substantially rectangular in form, having the common upward apertured projection in front that is rabbeted at *a*, for the reception of the edge portion of a lid B.

As shown in Fig. 1, there are two side scrolls *b*, formed in the box body A, between which a center scroll *c*, on the lid B, is introduced, the perforations in these scrolls aligning when the lid is in place, permitting the insertion of a cylindrical pintle bolt *d*, forming a hinge joint for connection of the lid with the axle box, and to prevent a lateral displacement of the bolt two cap plates *d'*, are provided which are secured over the ends of said bolt as shown by dotted lines in Fig. 1.

At the inner end walls of the scrolls *b*, two similar detent disks *b'* are formed or affixed,

having their peripheries scalloped as indicated in Fig. 2, where one disk is shown, these serving to retain the lid B, open or closed, by an engagement of their notched edges with the body of the core rod *e'*, that is secured at its ends and center within the scrolled end of a locking spring *e*, which latter is secured to the lid B, and projects its scrolled portions therefrom as shown in Figs. 2 and 3.

It will be seen that by the described construction of parts, the resilient body of the locking spring *e*, will allow the core rod *e'* to rock from one scallop notch to another on the detent disks *b'*, and thus retain the lid at different points of open adjustment or hold said lid in a closed condition as represented in Fig. 2.

The shell C, that forms a bearing for the journal D, of an axle, is of the usual form, and is held from displacement by its engagement with transverse spaced shoulders *f*, formed on the inner face of the top wall of the box and also by the cheek ribs *f'* interiorly formed on the sides of the box. The location of the shell C, is such as to permit a proper space to intervene between the collar end of the journal D and the lid B of the box, as well as a suitable sponge holding cavity below the journal.

A preferred means to retain fibrous material in place at the front end and below the journal D, consists of a shoe E, which is easily insertible through the aperture that is normally closed by the lid B. As shown in Figs. 1, 2, 6 and 7, the shoe E, is provided with spaced ribs *g*, on its upper face which ribs are serrated on their upper edges, and as represented at *g'* in Fig. 2, the front part of the shoe is curved upwardly to adapt it to conform with the curved front wall A' of the box A, and also to render the ribs *g* capable of sustaining a mass of sponge at the front end of the journal D. Above the ribs *g*, at their front top edges, a vertical gate *h*, is adapted to slide, by its loose engagement with opposite guide grooves *h'*, formed in the sides of the box A, which gate when in place, co-acts with the ribs *g* to retain the fibrous sponge material from displacement by affording a removable vertical wall, which will keep the sponge from crowding into the hinge joint of the lid B.

At the inner end of the box A, an oval ap-

erture is formed in the end wall for the free insertion of the axle journal D, and near to said end wall two parallel transverse slots are formed in the top wall of the box body. The slots *i i'* mentioned, are spaced apart by an intervening cross wall *k* which latter is apertured for the passage through it of the axle journal D. Another cross wall *m* is formed in the box A, at a proper distance forwardly of the transverse wall *k* and is similarly apertured for a like purpose.

Within the space between the transverse walls *k* and *m* two similar slide plates *n*, are loosely inserted; these plates have their meeting edges at the transverse center of the box A, and each has formed therein a semi-circular recess adapted to receive and to fit upon one half the body of the axle journal D, as represented in Fig. 5. The plates *n*, are pressed toward each other, by the spring frames *o* that are of like construction, each being composed of two upright parallel bars provided with opposite spaced pins, whereon the spiral springs *o'*, are supported, these springs acting together to spread the pairs of bars. One bar of each frame engages the side wall of the box A, and the other bar presses against the adjacent edge of the plate *n*, it is opposite; it being necessary that a sufficient width be given to the slot *i*, wherein these parts are loosely held, to allow them to be introduced and work as stated.

In the slot *i'* next the rear wall of the box body A, two nearly similar flat gates *p p'*, are inserted loosely, which gates join each other and have their meeting edges beveled inwardly and downwardly and cut away to form equal semi-circular recesses that together form a circular aperture equal in diameter to that of the axle journal D. The impinging edges of the gates *p p'*, are in a horizontal plane and therefore at a right angle to the meeting edges of slide plates *n*. The lower slide gate *p'* is upwardly pressed by the springs *p²*, that are seated in pockets on the lower wall of the box A, near each side of the same, and the upper gate *p* is downwardly actuated by an elliptic spring *r*, the latter having its ends in contact with the upper edge of the gate named, and its bowed center portion pressed upon by a cap piece *s*. As shown, the cap piece *s* is seated upon the top wall of the box body A, and is of such a proportionate width and length as will allow it to cover the upper edge of the gate *p*, and ends of the slide plates *n*, these sliding pieces being adapted to play within recesses in the cap piece which align respectively with the slots *i i'* in the top wall of the box.

On each side wall of the box body A, at a proper point to coincide with the end portions of the cap piece *s*, lateral projections *u*, are formed near the upper side of the box body, the length of the cap piece being sufficient to cover these projections.

There is a spring receiving channel transversely formed on the lower side of the cap

piece *s*, near each end, and a bowed spring *v*, is secured at its bow in each channel, the depending end portions of said springs projecting into the pockets *v'* that are formed in pairs properly separated in the projections *u*, see Fig. 8. The lower end portions of the springs *v*, are bent into locking knobs *v²* that will engage with shoulders formed on the lower sides of the projections *u*, so that the bowed springs serve as keeper latches to retain the cap piece *s*, in position on the box body and allow it to be removed as occasion may require, by pressing the limbs of the springs together, which will be effected if the cap piece is forcibly pulled in an upward direction.

The provision of the pairs of sliding plates and gates, as described, restrains the escape of any lubricating material at the inner side of the box A, when in service, while the closely fitted lid B, effects a like service at the front of the axle box.

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

1. The combination, with an axle box apertured at its forward end, of a hinged lid on said aperture, a detent disk *b'* having a scalloped periphery and a spring device adapted to snap into the scallops and hold the lid closed or at different points of open adjustment, substantially as described.

2. The combination, with an axle box apertured at its forward end, and a lid jointed to the box over said aperture, of a pintle loosely held in the joint scrolls, and cap plates secured to the sides of the axle box over the ends of the pintle, substantially as described.

3. The combination, with an axle box apertured at its forward end, a hinged lid for said aperture, the pintle of said hinge being held in the joint scrolls by caps at its ends, of scalloped disks held at the inner end walls of the joint scrolls, a keeper spring secured to the lid, and a core rod in said spring adapted to interlock with the scalloped edges of the disks, substantially as described.

4. The combination with an axle box apertured at its forward end, of a sponge holder shoe held within the axle box; parallel ribs on said shoe, and inwardly extending teeth formed on said ribs, substantially as described.

5. The combination with an axle box apertured at its forward end and curved upwardly at its front, of a forwardly and upwardly curved sponge holder shoe held in the box, upwardly and forwardly extending ribs on said shoe, and rearwardly extending teeth on said ribs, substantially as described.

6. The combination with an axle box, a bearing shell within said box and engaging its top wall, and an axle journal inserted in the shell, of a sponge holding shoe below and in front of the journal, longitudinally extending spaced ribs on the shoe, and serrations on each rib, substantially as described.

7. The combination with an axle box aper-

5 tured at its front, a lid on said aperture, and a sponge holding shoe in said box, having longitudinally extending spaced ribs thereon, and series of serrations on said ribs, of a vertically supported removable slide gate adapted to rest above the front of the sponge holder shoe, substantially as described.

10 8. The combination with the axle box apertured in its rear wall and provided with two vertical recesses open at their upper ends, of the vertically sliding spring pressed plates p p' in one recess and provided in their adjacent faces with semicircular recesses, the horizontally sliding spring pressed plates n n in 15 the other recess and having their adjacent edges semicircularly recessed and the cap closing the upper ends of the two recesses, substantially as set forth.

20 9. The combination with the axle box, its dust guard recess, the projections u on the upper edge of the body at the ends of the said recesses and pockets v' alongside of the projections u , of the caps provided with depend-

ing bowed springs v , the ends of which enter said pockets, and knobs or projections v^2 on 25 the lower ends of the springs engaging shoulders in the wall of said pockets, substantially as set forth.

10. The combination with an axle box apertured at its forward and rear ends, a lid on 30 the front aperture, a shell within the box, and a sponge holder shoe in the box, having toothed, spaced longitudinal ribs, of vertically supported slide plates semi-circularly recessed on their meeting edges to form a circular opening, a spring device bearing laterally on each 35 plate, and spring pressed slide gates adjacent to the rear wall of the axle box, also semi-circularly recessed at their meeting edges, and which gates separate on a horizontal line, substantially as described. 40

WILLIAM RADER.
EDWIN HUNTER.

Witnesses:

THOS. O. GINKINGER,
T. F. DIEFENDERFER.