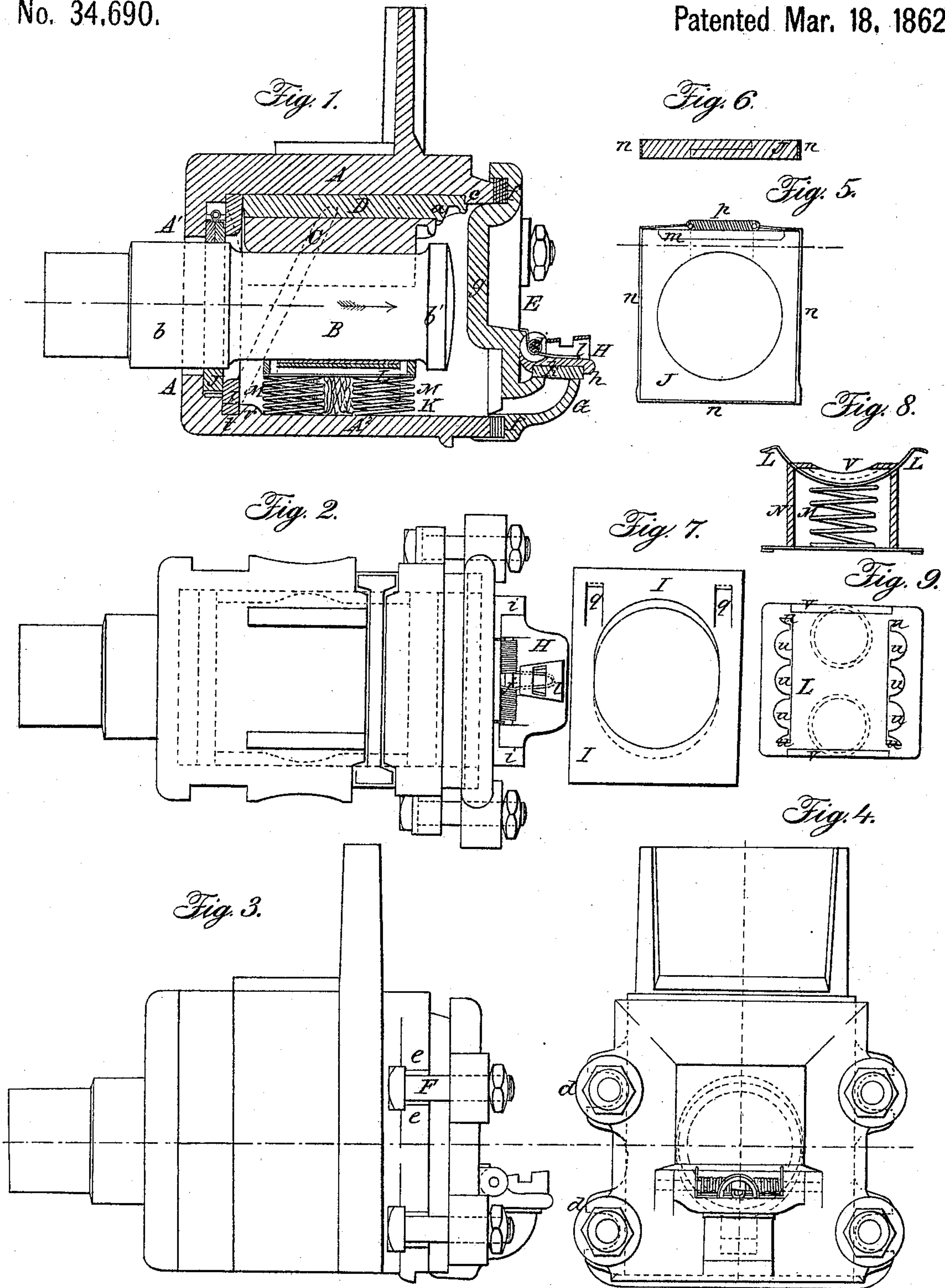


MILLHOLLAND & LAHAYE.

Car-Axle Box.

No. 34,690.

Patented Mar. 18, 1862.



Witnesses:

{ Charles Houston
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Inventor:

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UNITED STATES PATENT OFFICE.

JAMES MILLHOLLAND AND JOHN JOS. LAHAYE, OF READING,
PENNSYLVANIA.

IMPROVEMENT IN JOURNAL-BOXES.

Specification forming part of Letters Patent No. 34,690, dated March 18, 1862.

To all whom it may concern:

Be it known that we, JAMES MILLHOLLAND and JOHN JOS. LAHAYE, both of Reading, Berks county, Pennsylvania, have invented certain Improvements in Journal-Boxes; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention consists of certain improvements in journal-boxes, fully described hereinafter, the objects of the said improvements being as follows: first, maintaining the rear of the box tight at all times and thereby effectually preventing the escape of oil at that point, and this without the aid of any external appliances commonly connected with the rear packing of journal-boxes; secondly, maintaining the front of the box perfectly oil-tight by a peculiar manner of packing the detachable cover; thirdly, preventing the introduction of more oil into the box than is absolutely necessary for lubricating purposes; fourthly, preventing more oil than is necessary from gaining access to the journal, and, fifthly, obviating the rapid destruction of the wicking or other fibrous material by means of which oil is conveyed from the reservoir to the journal.

In order to enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section of our improved journal-box; Fig. 2, a ground plan; Fig. 3, an interior side view; Fig. 4, a front view; Fig. 5, a front view of the packing; Fig. 6, a top view of the packing; Fig. 7, a front view of the packing-plate; Fig. 8, an end view of the lubricating device, and Fig. 9 a plan view of the same.

Similar letters refer to similar parts throughout the several views.

On reference to Fig. 1, A represents the top, A' the rear, and A² the bottom, of the exterior casing of the box, which may be of the usual form and provided with the usual recesses on the opposite sides for application to

the ordinary hangers of locomotives or railway-cars.

B is the journal of the axle, having the usual inner collar or enlargement *b* and the exterior collar *b'*. To this journal is adapted the step or bearing C, between which and the top A of the box intervenes a key D, the front end of the latter having a lip *a*, which overhangs the end of the step, the key itself being overlapped at *c* by the front end of the box, so that on slightly raising the latter and withdrawing the key the step may be readily removed through the front of the box. This arrangement of parts is precisely similar to that adopted in the well-known Lightner box, and therefore requires no further description.

The front E of the box consists of a plate the form of which will be best observed on reference to Fig. 4. It has on each of its opposite edges two lugs *d d*, and through each lug passes a bolt F, which also passes through an opening between two lugs *e e* cast on the side of the box, a portion of the square head of the bolt fitting into a recess formed at the rear of the said lugs, as seen in Fig. 3.

A recess is formed on the inside and near all of the four edges of the cover E, the recesses, which communicate with each other, being filled or nearly filled with cork blocks *f f*, (see Fig. 1,) the front end of the box being so constructed as to bear against these cork blocks, so that when the nuts of the bolts F are screwed tight the cork forms a perfectly secure fastening and effectually prevents the escape of oil at the joints.

A portion *g* of the cover E projects a short distance into the interior of the box, so that on any sudden movement of the axle taking place in the direction of the arrow, Fig. 1, the excessive strain may be received partly by the collar of the enlargement *b* of the axle bearing against the inner end of the step and partly by the end of the axle bearing against the said projecting portion *g* of the cover. Near the lower end of this cover is a hollow projection G, communicating with the interior of the box, the upper edge *h* of this projection being parallel with the axle and at an altitude from the bottom of the box equal to the depth of oil required in the same, so that in replenishing the box it will be impossible to

introduce more oil than is absolutely necessary for the proper lubrication of the journal, thereby insuring that economy in the consumption of oil which cannot be obtained in boxes into which the oil is introduced at random through orifices near the top of the box. Immediately above the top of this hollow projection G a lid H is hinged to two lugs *i i* on the face of the cover E by means of a pin *j*, round which is coiled a strong spiral spring so acting on the lid as to depress the same with considerable force, there being a dove-tailed recess on the under side of the lid for the reception of a cork packing *k*, which bears upon the top of the hollow projection G. The top of the lid is provided with a suitable socket *l* for the reception of the bar, by means of which the rigidity of the spring is overcome and the lid raised at pleasure.

Between the back A' of the box and a plate I intervenes the packing J, by means of which one of the great evils common to most journal-boxes is overcome—namely, the escape of oil at the rear of the box and the penetration of sand and dirt to the interior of the same at this point. This packing, which will be best observed on reference to Figs. 5 and 6, consists of a strip of cork with a hole slightly less in diameter than that of the enlargement *b* of the axle. This strip of cork is severed at the top, which is cut in the manner shown in Fig. 6, one severed end of the cork overlapping the other, and the overlapping portions being maintained in close contact with each other laterally by means of a metal clip *m*. The edges of the cork strip are embraced by a metal strap *n n*, the opposite ends of which are connected together by means of a spiral spring *p*, which tends to contract the cork and cause it to embrace the enlargement *b* of the axle B with considerable force and to form so tight a joint round the axle that it is impossible for the oil to escape.

It has been usual hitherto to pack journal-boxes from the rear by driving the packing into a recess formed in the back of the box. This, as is well known to all familiar with this class of machinery, is objectionable, as the packing, being, as it were, part of the box, wears on the top as the step wears, and consequently becomes leaky below. Strips of leather have also been used in the interior of the box for packing purposes, the packing being tightened by appliances to be operated from the outside of the box. This is objectionable, as the integrity and solidity of the box are destroyed, and the appliances required are difficult of access and liable to become readily disarranged. These evils are avoided in my improved box, which is entire throughout, the packing being maintained tight without the aid of external appliances.

When the cover is removed and the key D and step C, together with the oiling apparatus, hereinafter alluded to, and the plate I have

been withdrawn from the box, the packing J is introduced into its place by first slightly expanding the opening, then pressing it over the collar *b'* of the axle, then pushing it along the journal, again expanding the packing, and pushing it over the enlargement *b* of the axle and to its proper place at the back of the box. After this the plate I is inserted in the same manner by means of suitable instruments inserted into orifices *q q*, Fig. 6. In doing this it is necessary that the plate should assume the angular position shown by the red lines, Fig. 1, so that its lower edge may be raised over the rib *r* at the bottom of the box and dropped into the recess *t*, after which the plate may be raised to a perpendicular position and take its place next to the packing J, against which it is pressed by the end of the key D with sufficient force to maintain the packing tight.

We have ascertained by practical experiments that cork is an especially serviceable material for packing purposes, as it forms a most effective joint, has little or no liability to wear, and is not softened by the action of oil, which is the case with leather.

It will be observed that the space between the back of the box and the plate I is sufficiently large to allow the cork packing to rise with the axle as the step wears, so that however much reduced the step may become the packing continues to perform its duty of retaining the oil within the box and excluding the dust and dirt.

The lubricating device consists of two plates K and L, connected together by two spiral springs, and best observed on reference to the detached views, Figs. 7 and 8. The lower plate K is plain, but the upper plate L is curved to the form represented in Fig. 8, the opposite bent-down edges of the plate touching or nearly touching the sides of the box. Near the opposite edges of this plate are a series of holes *u u*, (see Fig. 9,) the cotton wicking or other suitable fibrous material N passing from the bottom of the box upward through the holes *u u* on one side of the plate, along the top of the latter, and down through the holes on the opposite side of the plate, so that the ends of the wicking are maintained in a body of oil, that portion of the wick on the top of the plate being always maintained in contact with the journal of the axle by means of the spring M. The constant friction of the journal on this portion of the cotton wicking, however, would tend to rapidly cut it and render it inoperative but for the ribs *v v* at the opposite ends of the plate L, these ribs being pressed directly against the axle by the springs M M, so that while the wicking is in actual contact with the journal it is relieved from pressure against the latter by the ribs, and is thus preserved from being rapidly worn away.

We do not desire to claim, broadly, the pack-

ing J, surrounding the axle, and so fitting into a recess in the interior of the box that it can adjust itself vertically; but

We claim as our invention and desire to secure by Letters Patent—

1. The cork packing J and the detachable plate I, when both are arranged in the rear of the box and confined therein by the recess *t* and key D, as and for the purpose herein set forth.

2. The cork packing J, severed at one point, in combination with the strap *n* and spring *p*, the whole being constructed and arranged substantially as and for the purpose specified.

3. The cover E, having a recess *f*, filled with cork and applied to the front of the box, in the manner and for the purpose specified.

4. The hollow projection G, the lid H, with

its dovetailed recess, containing the cork packing *k*, the spring for depressing the lid, and the socket *b*, or its equivalent, the whole being arranged and combined with the detachable cover E, as and for the purpose herein set forth.

5. The projections *v v*, applied to the plate L substantially in the manner and for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES MILLHOLLAND.
JOHN JOS. LAHAYE.

Witnesses:

DE B. KEIM,
ALONZO B. TURNER.