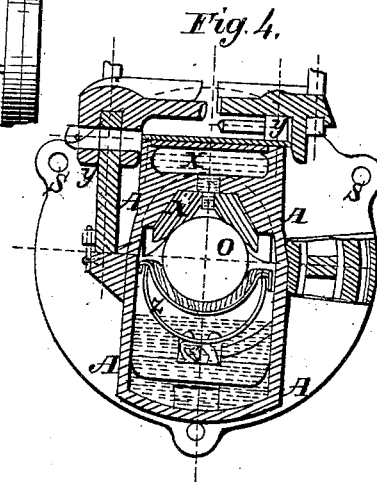
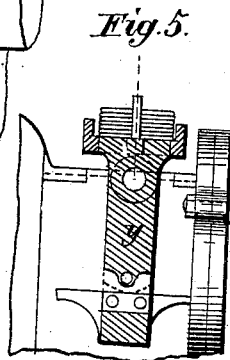
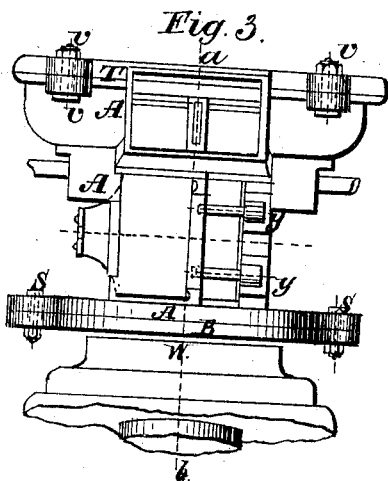
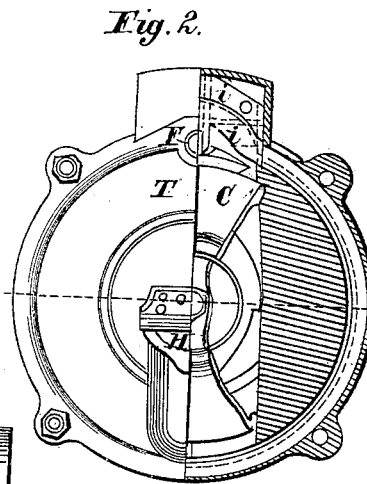
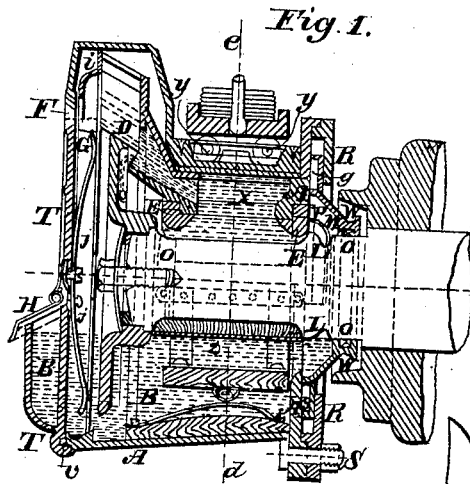


Car-Axle Box.

Patented Nov. 28, 1865.



UNITED STATES PATENT OFFICE.

JEAN FRANÇOIS AUGUSTE AERTS, OF ANTWERP, BELGIUM.

IMPROVED LUBRICATING APPARATUS.

Specification forming part of Letters Patent No. 51,276, dated November 28, 1865.

To all whom it may concern:

Be it known that I, JEAN FRANÇOIS AUGUSTE AERTS, have invented certain new and useful Improvements in the Aerts Apparatus for Lubrication by a Continuous Flow of Water or other Fluids; and I do hereby declare that the following, taken in connection with the drawings, is a full, clear, and exact description thereof.

In the drawings, Figure 1 is a vertical longitudinal section through the center of a box and through the axis of a railway-journal, exhibiting the Aerts apparatus and the improvements thereon constituting this invention. Fig. 2 is a front elevation of the same, with parts broken away to exhibit other parts in the interior of the box. Fig. 3 is a top view or plan of the same with parts removed in order to exhibit lines beneath them. Fig. 4 is a vertical transverse section on the line *cd* of Fig. 1. Fig. 5 illustrates the method of applying a spring to the box, and Fig. 6 is a perspective view of the packing applied below the axle.

In the use of the Aerts apparatus, for which Letters Patent of the United States were granted on the 31st day of January, A. D. 1865, certain difficulties presented themselves which it is the object of the present invention to obviate. These difficulties were of two classes: first, that the escape of water from the box was not completely stopped, thereby necessitating examination of the apparatus and refilling oftener than was deemed advisable; second, that there was not sufficient provision for lubrication at the moment of starting and until the flow of water through the upper brass became continuous, neither was the lubrication as perfect as was desirable at very low velocities, as when running slowly or backing the train.

These difficulties, which rendered the apparatus less perfect than was desired, although it still performed its purpose to advantage, have been obviated, first, by the employment of a reversed gutter above the guide or scraper, which deflects the water from the disk into the channel through the upper brass, such gutter also extending over the separating-partition lettered *II* in the drawings of this application. This gutter arrests and deflects downward any water that may not be thrown into the channel

X and prevents it from being dashed against the joints of the box so violently that it may escape; second, by the attachment of a piece of metal of a sort of horseshoe shape to the inner end of the upper brass, in combination with a groove in the axle or a shoulder upon it, thus preventing water from escaping along the axle at that end of the box nearest the wheel; and, third, by combining with the rotating disk which elevates fluid to the upper side of the axle a porous packing beneath the axle, which always, even when the axle is at rest, retains some water or fluid, thereby lubricating the axle at the time of starting the train when the axle commences to revolve, or at such short periods as the train may be moving at low velocities.

In the drawings, the box is shown at *A A*, the axle or shaft at *o o*, the revolving disk at *C*, the guide or scraper or deflector at *D*, the upper brass with a channel through it at *E E*, the partition at *I I*, and the turn-plate or rear packing-disk with its leather or india-rubber collars at *W W q q q q*, it being held in place by the ring *R*. As all these parts and others represented in the drawings are now known by description in the patent hereinbefore named, a detailed description of them and their uses is deemed unnecessary.

Above the guide *D* and the partition *I I* is located the reversed gutter *i*, shaped substantially as shown in the drawings, and so located, as may be seen by examination of the drawings, as to arrest all water that may escape upward either alongside the guide or deflector or that part thereof which is contained in its guiding-groove, and also to throw or deflect such water downward toward the bottom of the box and the water or fluid contained therein, thereby preventing water that may be thrown from the disk by centrifugal force from being projected violently against the joints in the upper part of the box, and thus tending to render the box less liable to leakage. This reversed gutter may be cast in one piece with other parts or the box, or may be made of sheet metal and inserted above the guide and the partition. At the inner end of the upper brass is secured to the brass, by a water-tight joint, a horseshoe-shaped piece of metal, *M*. This piece is concave toward the outer end of the axle, and fits the axle or a groove turned there

in, circumscribing the axle for about one-half of its diameter, and being shaped like one-half of a concave ring or washer. Any water that may tend to escape endwise between the brass and the axle, or that may be projected from the upper part of the axle between the brass and the turn-plate by centrifugal force, will be arrested by this half-dome or horseshoe-shaped piece, and will fall into the reservoir below. It is important that the inner periphery of this piece M should rest on or nearly touch the axle in a groove turned therein, or that a collar should be secured to the axle, so as to make a shoulder between the piece M and the turn-plate W, as the side of the groove or collar will prevent water deflected by the piece M from following along the axle. In order, as before stated, to lubricate the axle at starting, there is applied below it a porous packing, Z. This packing may be made of two springs like half-hoops attached to a piece of wood below and having their upper ends connected by bars or strips, to each of which bars pieces or a single piece of cloth, felt, or other porous or spongy material are to be attached, so as to extend from one side to the other of the axle and fit the lower part thereof. This packing may rest upon a piece of wood and be borne up against the lower side of the axle by a spring, (see Figs. 1 and 4,) and it is preferred to attach to the bars a single piece of carpet with a pile thereon, like Imperial or cut Brussels carpet, such pile acting like a spongy brush applied below the axle, the best form of the pile being shown at Fig. 8, where it extends lengthwise of the axle and across it at the two ends of the packing, leaving part of the packing free from pile, and thus permitting surplus water to fall

freely to the reservoir below. This packing may be constructed in various ways, but must be applied below the axle or shaft, must be porous, so as to hold liquid in its pores, and must, either by its own elasticity or by means of springs, or in both ways, be held in contact with the lower half of the shaft, or a portion thereof. The packing should be coated slightly with tallow or oil before it is applied in place, although it serves a good purpose when applied without any such coating. Such a packing will permit fluid descending between the axle and the upper brass to escape to the reservoir, will distribute fluid over the whole rubbing-surface of the shaft, and will retain fluid which it will give off to the axle when the latter is revolving slowly or is starting from a state of rest.

I claim as my own invention—

1. A reversed gutter applied and constructed substantially as described, and operating to prevent water from being projected violently against the upper part of the box, substantially as set forth.

2. A horseshoe-shaped piece or half-dome of metal, in combination with a groove on the axle, the two being located with reference to the upper brass and to each other, and acting in combination, substantially as hereinbefore specified.

3. In combination with a rotating disk elevating fluid above an axle, a packing applied beneath the axle, constructed and operated substantially as described.

JEAN FRANÇOIS AUGUSTE AERTS.

In presence of—

W. M. INMAN,

A. W. CRAWFORD.