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F. J. PRUE.

OVERHEAD TROLLEY.

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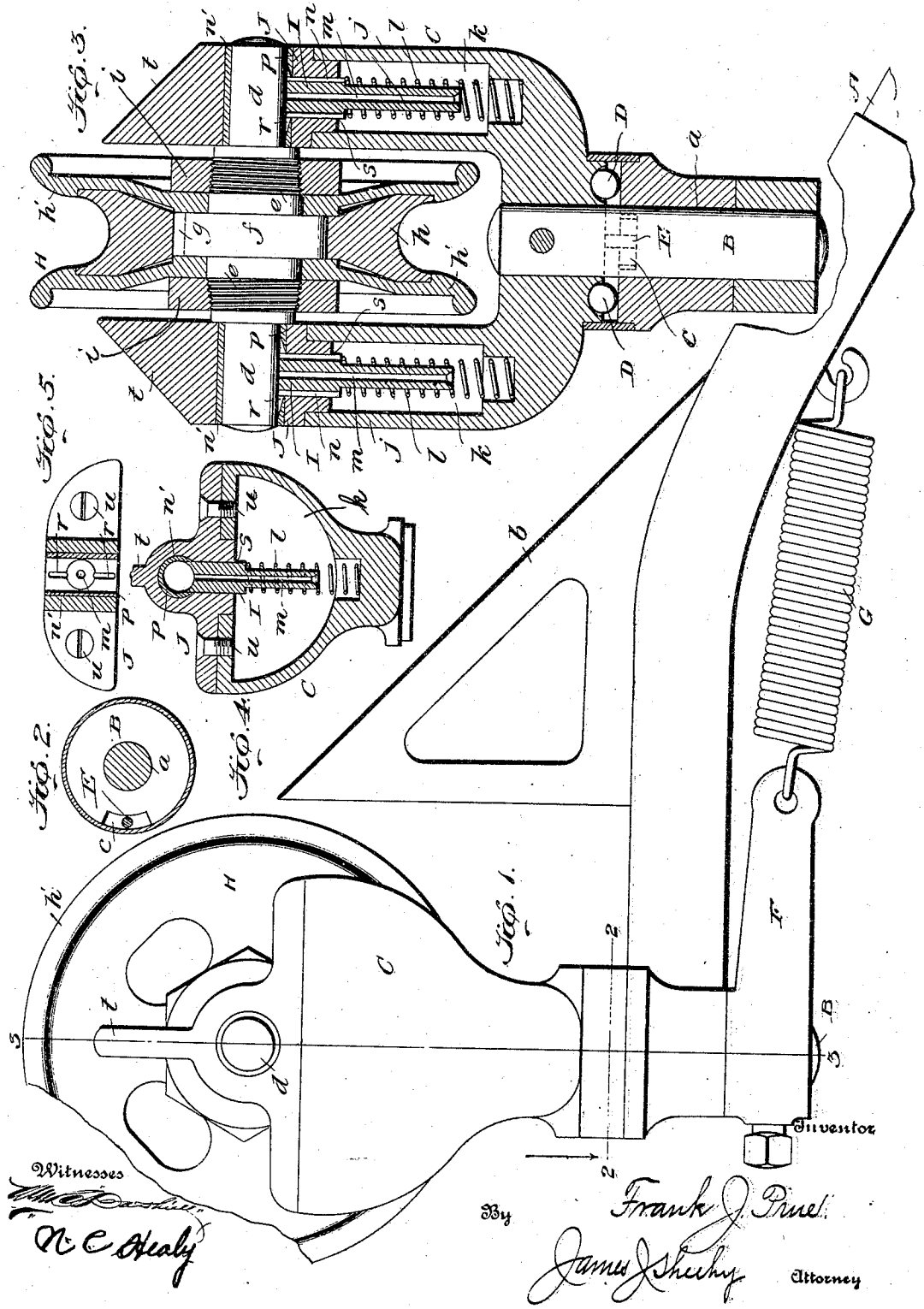

No. 785,183 Patented March 21, 1905.

UNITED STATES PATENT OFFICE.

FRANK J. PRUE, OF WOONSOCKET, RHODE ISLAND.

OVERHEAD TROLLEY.

SPECIFICATION forming part of Letters Patent No. 785,183, dated March 21, 1905.

Application filed November 7, 1904. Serial No. 231,770.

To all whom it may concern:

Be it known that I, FRANK J. PRUE, a citizen of the United States, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Overhead Trolleys, of which the following is a specification.

My invention pertains to overhead trolleys; and it has for its object to provide a trolley constructed with a view of maintaining thorough lubrication of the journals of its wheel and prolonging the usefulness thereof and one adapted to accommodate itself to a trolley-wire and avoid guy-wires and other obstructions in its path and in which the parts are so assembled and connected that any one part may be removed when worn or broken and replaced with a new part without affecting the efficiency of the other parts.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the overhead trolley constituting the present and preferred embodiment of my invention. Fig. 2 is a detail horizontal section taken in the plane indicated by the line 2 2 of Fig. 1 looking downwardly. Fig. 3 is a transverse section taken in the plane indicated by the line 3 3 of Fig. 1 and showing some of the parts in elevation. Fig. 4 is a detail vertical section taken through the head of the trolley at right angles to Fig. 3 and at one side of the trolley-wheel, and Fig. 5 is a horizontal section taken through one of the caps of the trolley-head.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A is the pole of the trolley, which is provided adjacent to its free end with a vertically-disposed aperture *a* and is also provided on its upper side adjacent to said end with a fender *b*, the latter having for its purpose to assist in preventing the trolley-wheel from catching into and injuring guard and guy wires and other obstructions in its path.

B is a vertical journal disposed in the aperture *a* of the pole.

C is the trolley-head, which is keyed or otherwise fixed on the upper portion of the journal B.

D D are antifriction-balls interposed between the lower end of the head and the pole with a view of rendering easy axial movement of the former, necessary to enable it to readily accommodate itself to irregularities of the trolley-wire.

E is a stud depending from the lower end of the head C and disposed in a groove *c* in the upper side of the pole A.

F is a crank-arm fixed on the lower end of the journal B, and G is a spring interposed between and connected to the said arm and the pole A. The said spring G serves to yieldingly hold the trolley-wheel in the position illustrated relative to the pole A and yet enables the said wheel to swing to the right or left, and thereby accommodate itself to such irregularities as may occur in the trolley-wire. The groove *c* in the pole A describes but an arc of a circle, Fig. 2, and hence the stud E, disposed in the said groove, will limit the described swinging movements of the trolley-wheel, so as to always assure the same finding the trolley-wire, and will also prevent the banging to which the trolley-wheel is ordinarily subjected from overcoming the spring G.

H is the trolley-wheel as a whole. The said wheel comprises a shaft having journals *d* at its ends and right and left hand threads *e* at intermediate points of its length and also having a middle enlargement *f*, provided with a key or feather *g*, a body *h*, fixed to the said enlargement *f* by the key or feather *g* thereof, side plates *h'*, mounted on the shaft at opposite sides of the enlargement *f* and receiving the body *h* between them, and nuts *i* mounted on the shaft at the outer sides of the side plates *h'*. In virtue of this construction of trolley-wheel there is little or no liability of any of the parts mentioned moving casually relative to the other parts when the wheel is in use, and yet when the body *h*, which is the part most subjected to shock and frictional wear, is broken or worn the same may obviously be removed with facility and replaced with the new body with but little trouble and without in any way impairing the efficiency of the other parts.

As best shown in Figs. 3 and 4 of the draw-

ings, the head C is bifurcated to receive the trolley-wheel and is provided in the arms *j* at opposite sides of the bifurcation with lubricant-chambers *k*. In the said chambers *k* are arranged vertically-disposed coiled springs *l*, which receive the lower reduced portions of vertically-movable plungers I and bear against shoulders of the said plungers, so as to yieldingly press the same upwardly. The said plungers are provided with longitudinal central bores *m* for the passage of lubricant and are also provided in the sides of their upper enlarged portions with longitudinal channels *n* for the downward passage of surplus lubricant, as will be presently more fully set forth.

Secured on the upper ends of the arms *j* of the head and closing the lubricant-chambers *k* are caps J. These caps have bearings *n'* for the journals *d* of the trolley-wheel shaft, which bearings are preferably lined with Babbitt metal, as indicated by *p*, and are also provided in their lower portions with longitudinal grooves *r*, which are pitched or inclined downwardly toward the bores *s* in the lower portions of the caps. The said bores *s* are to receive the upper comparatively large portions of the plungers I, the channels *n* of which register with the grooves *r*, and hence it will be seen that any surplus lubricant that may accumulate in the bearings *n'* will readily find its way back into the chambers *k* and be saved for future use. As will be readily observed by reference to Fig. 3, the plungers I will serve as suction devices to assure a continuous and uniform supply of lubricant to the trolley-wheel journals *d* and the bearings thereof and in that way will lessen the liability of the said parts being worn by friction, and this without waste of lubricant, which is an important desideratum. In addition to the features mentioned the caps J are provided with fenders *t*. These latter are disposed at opposite sides of the trolley-wheel H, Figs. 1 and 3, and are designed to assist the fender *b* in preventing the wheel from catching into and injuring guard and guy wires that may lie in its path when it is out of engagement with the trolley-wire. The caps J are preferably connected to the upper ends of the arms *j'* by screws *u*, Fig. 4, and one of these screws may be removed when it is desired to replenish the lubricant in a chamber *k*.

As will be readily appreciated from the foregoing, my novel overhead trolley is well adapted to withstand the rough usage to which overhead trolleys are ordinarily subjected, and yet its construction is simple and inexpensive as compared with that of trolleys extant.

I have specifically described the construction and relative arrangement of the parts in the trolley constituting the present and preferred embodiment of my invention in order to impart a definite understanding of the said embodiment. I do not desire, however, to be understood as confining myself to such specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention as claimed.

It frequently happens at night, when it is impossible for a conductor to see, that he misplaces the trolley-wheel, so that the wire lodges between the head and wheel, thereby causing the trolley-pole to fly away from the wire when the car starts. This objectionable contingency is precluded by the fenders *t*, which assure the grooved perimeter of the wheel engaging the wire.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a trolley, journals, and a wheel fixed with respect to the journals, in combination with a head containing lubricant-chambers and having bearings receiving the journals and bores connecting the lubricant-chambers and said bearings, and spring-pressed plungers occupying said bores and having ducts for the passage of lubricant.

2. In a trolley, journals, and a wheel fixed with respect to the journals, in combination with a head containing lubricant-chambers and having bearings receiving the journals and provided with longitudinal grooves and also having bores connecting the lubricant-chambers and said bearings, and spring-pressed plungers occupying the said bores and having bores of their own for the passage of lubricant to the bearings, and also having channels in their sides arranged in alinement with the grooves of the bearing so as to provide for the return of surplus lubricant to the chambers.

3. In a trolley, journals, and a wheel fixed with respect to the journals, in combination with a head comprising a bifurcated body and caps secured thereon; the said head containing lubricant-chambers and having bearings receiving the journals and provided with longitudinal grooves, and also having bores connecting the lubricant-chambers and said bearings, plungers having enlarged portions occupying the said bores, and having channels in the sides of said enlarged portions arranged in alinement with the grooves of the bearings, and also having bores extending throughout their length, and coiled springs receiving the plungers and interposed between the enlarged portions thereof and the bottoms of the chambers.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK J. PRUE.

Witnesses:
EDGAR L. SPAULDING,
GEO. W. SPAULDING.