

No. 765,852.

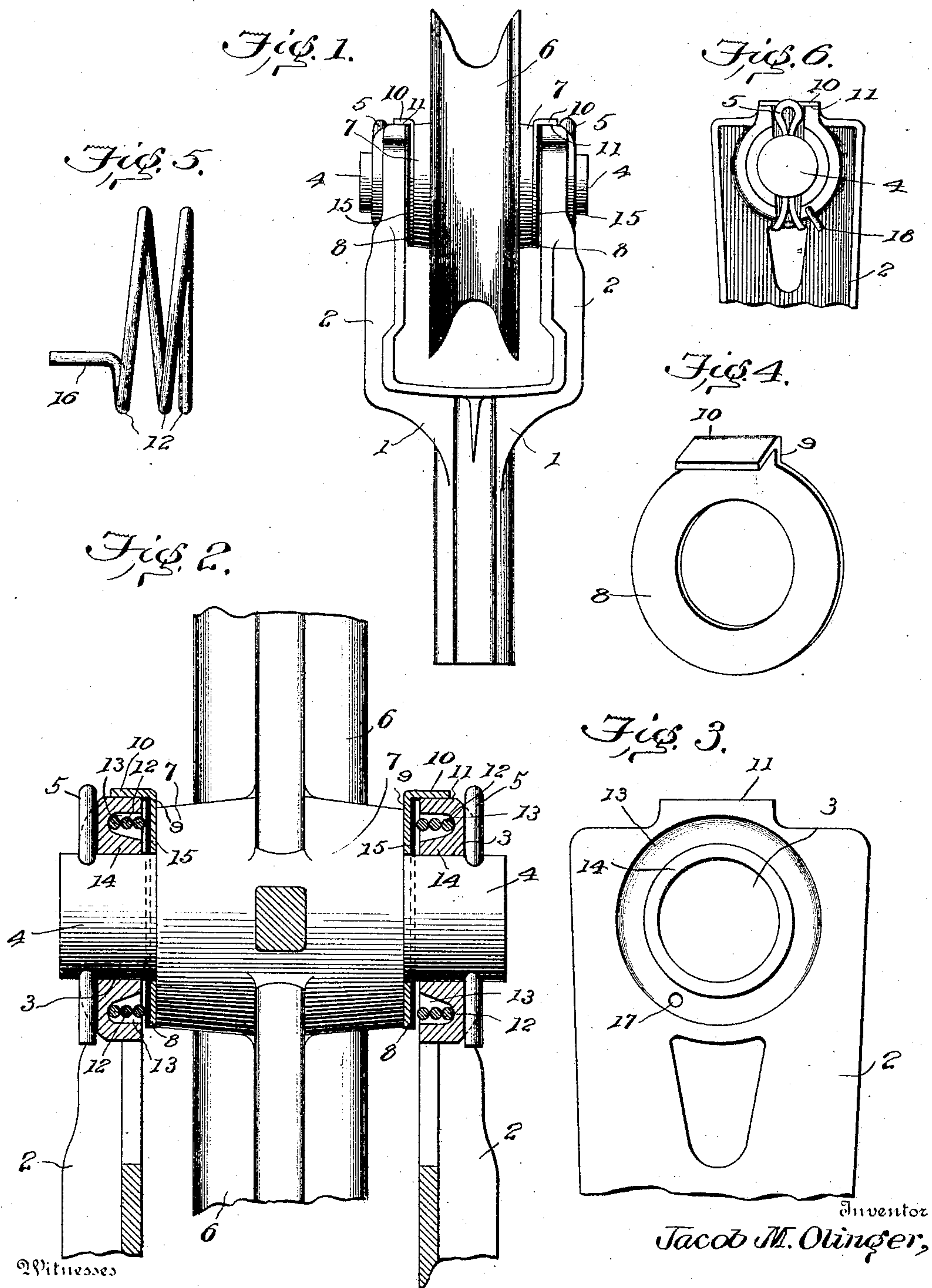
PATENTED JULY 26, 1904.

J. M. OLINGER.

TROLLEY.

APPLICATION FILED MAY 12, 1904.

NO MODEL.



Witnesses

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TROLLEY.

SPECIFICATION forming part of Letters Patent No. 765,852, dated July 26, 1904.

Application filed May 12, 1904. Serial No. 207,507. (No model.)

To all whom it may concern:

Be it known that I, JACOB M. OLINGER, a citizen of the United States, residing at Vienna Crossroads, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to trolleys, and more particularly to that portion of the structure comprising the harp or head and trolley-wheel and the connecting parts.

The invention has for its object to provide a simple and compact structure by means of which the trolley-wheel may be effectively supported and centered upon its journal-pin without the employment of the flat or leaf springs usually employed in such structures and without unduly increasing the width of the harp or diminishing the support furnished by the harp to the ends of the journal-pin.

A further object of the invention is to avoid the employment of the centering-springs as a means for conducting the current from the wheel to the harp, thereby increasing their durability.

To these ends my invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a structure embodying my invention in one form. Fig. 2 is a vertical sectional view of the same, taken in the plane of revolution of the axis of the trolley. Fig. 3 is a view of the inner face of the upper portion of one of the arms of the harp. Fig. 4 is a perspective view of one of the centering disks or washers detached. Fig. 5 is an elevation of one of the springs detached, and Fig. 6 is a side elevation of the upper portion of the harp.

In the said drawings, 1 indicates the trolley-harp, which is provided with parallel and upwardly-extending arms 2. Each of these arms is provided near its upper end with an aperture 3, and in these apertures the journal-pin 4 is secured in any approved manner—as, for instance, by the usual split pins 5, located in

suitable recesses in the outer faces of the arms 2.

6 indicates the trolley-wheel, having a hub 7, these parts being of any approved construction. At each end of the hub of the trolley-wheel there is mounted on the journal-pin 4 a washer 8, constructed preferably of brass or other similar wearing material, these washers being held against the ends of the hub of the trolley-wheel for the purpose of centering the wheel and preventing it from moving lengthwise of the pin and coming into contact with the inner faces of the arms of the harp. Each washer is provided with an upward extension 9 above the upper edge of the adjacent harp-arm, and its extremity 10 is bent outward at right angles to the portion 9, so as to rest on top of the harp-arm, which is preferably flattened, as indicated at 11, to form a bearing for this projection. The washers 8 are pressed against the ends of the hub 7 by means of coiled springs 12, of which two are employed, one at each side of the structure and bearing respectively against the harp-arm and washer. An annular seat or groove 13 is formed in the harp-arm 2 to receive this spring, said groove having its mouth or opening at the inner face of the harp-arm. Said annular groove or seat is located some little distance from the aperture 3 of the arm in which the journal-pin is secured, so that there is a body of metal 14 located between said groove or seat and the pin, and the pin has a bearing at each end in the harp-arm of a length equal to the entire thickness of the harp-arm.

Each washer 8 preferably has its outer face, against which the spring 12 bears, or so much of said face as is in contact with said spring, provided with a facing or covering 15, of insulating material, such as mica, vulcanized fiber, or any other suitable material.

Referring more particularly to the construction and mounting of the springs 12, it will be seen from an inspection of Fig. 5, in which one of these springs is shown as it is before being applied to the structure, that said spring is what is known as "square-ended" or "flat-ended," the final coil or convolution, which

abuts against the washer, having its abutting face in a plane so as to bear equally against all parts of the washer. This possesses a material advantage over the leaf-springs ordinarily employed, which owing to their constantly-changing angular relations to the washer cannot bear equally upon all parts thereof when said washer lies in a plane at right angles to the axis of the journal-pin, as it should. By reason of the construction just described the square-ended spring not only presses equally against all parts of the washer, but also maintains it in the proper plane relatively to the journal-disk to cause it to bear equally against all parts of the end of the wheel-hub. It will also be noticed that the spring 12 is shown in Fig. 5 as provided at its outer end with an extension 16, bent at right angles to the portion of the spring of which it forms an extension. The harp-arm is provided with an aperture 17, (shown more particularly in Fig. 3,) and during the assembling of the structure the extension 16 is passed through the aperture 17, so as to project beyond the outer face of the harp-arm, its projecting portion being bent at an angle, as shown at 18 in Fig. 6, so as to attach the spring to the harp-arm and hold it in position during the assembling of the parts, thus facilitating the assembling operation. This also serves to prevent accidental displacement and loss of the spring in case the structure is taken apart, while it permits the ready removal of the spring, if necessary, by simply straightening the part 18, so as to permit its withdrawal through the aperture 17.

The springs 12 are preferably made "rights and lefts" or coiled in opposite directions.

Heretofore in structures of this character flat or leaf springs have been generally used for pressing the centering-washers against the ends of the trolley-hub. These springs are objectionable, both on account of the rapidity with which they lose their resilience and on account of the special provision which it has been necessary to make to protect them from injury, resulting in an increased width and increased cost of the harp. It has been proposed to employ coiled springs to hold the centering-washers in position; but, so far as I am aware, these springs have always been located in recesses constituting, in fact, enlargements of the apertures in which the journal-pin is secured, thus requiring an increase in the width of the harp in order to obtain a sufficiently long bearing for the ends of the journal-pin to effectively support the same. By reason of the construction which I have devised the journal-pin is surrounded by the metal of the harp for a distance at each end equal to the entire thickness of the harp-arm, and it is therefore not necessary to increase the width of the harp to obtain the necessary length of bearing-surface. Such portions of the current as pass from the hub of the trolley-wheel to the

washers 8 are delivered from said washers to the harp by means of the projections 9 and 10, while the projections 10 serve in an obvious manner to prevent rotation and consequent wear of the washers and provide a firm and extended contact between the washers and harp. Where the washers are insulated from the springs, which is my preferred construction, all of the current from the washers is delivered directly to the harp at the contact 10 11 without any portion of it passing through the springs, and this greatly increases the life of the springs, as it prevents arcing between the coils of the springs and between the washers and springs, and thereby diminishes the danger of overheating and consequent loss of resilience.

It will be understood, of course, that the spring-pressed washers will serve to center the trolley on its journal-pin and prevent its coming into contact with the harp-arms, and as the ends of the hub become worn the springs will take up the wear and maintain the centering functions of the washers in full efficiency.

I do not wish to be understood as limiting myself to the precise details of construction hereinbefore described, and shown in the accompanying drawings, as the same may obviously be modified without departing from the principle of my invention.

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

1. The combination, with a trolley-harp provided with arms, a journal-pin mounted in said arms, and a trolley-wheel mounted on said journal-pin and provided with a hub, of spring-pressed washers loosely mounted on the journal-pin at each end of said hub, each of said washers being provided with a projection extending over and bearing on the top of the adjacent harp-arm, substantially as described.

2. The combination, with a trolley-harp having arms, each arm being provided with an aperture adapted to receive one end of a journal-pin, and each arm being provided with an annular seat or groove opening toward the inner face of the arm and surrounding, but distinct from, the aperture for the journal-pin, there being an annular body of metal between said aperture and annular seat or groove, of a journal-pin mounted in said apertures, said journal-pin having a supporting-bearing at each end of a length equal to the entire thickness of the harp-arm, a trolley-wheel provided with a hub mounted on said journal-pin, a washer loosely mounted on said journal-pin at each end of the hub, and a coiled spring located in each annular seat or groove and bearing against the adjacent washer, substantially as described.

3. The combination, with a trolley-harp having arms, each arm being provided with

an aperture adapted to receive one end of a journal-pin, and each arm being provided with an annular seat or groove opening toward the inner face of the arm and surrounding, but distinct from, the aperture for the journal-pin, of a journal-pin mounted in said apertures, a trolley-wheel provided with a hub mounted on said journal-pin, a washer loosely mounted on said journal-pin at each end of the hub, and a coiled spring located in each annular seat or groove and bearing against the adjacent washer, each of said washers being provided with a projection extending over and contacting with the upper end of the adjacent harp-arm, substantially as described.

4. The combination, with a harp having arms, a journal-pin mounted in said arms, a trolley-wheel provided with a hub mounted on said journal-pin, a washer loosely mounted on said journal-pin at each end of the hub, and a coiled spring interposed between each harp-arm and the adjacent washer, of an insulation on the outer face of each washer between the body thereof and the cooperating spring, substantially as described.

5. The combination, with a trolley-harp provided with arms, a journal-pin mounted in

said arms, a trolley-wheel mounted on said journal-pin and provided with a hub, and washers loosely mounted on the journal-pin at each end of said hub, of a coiled spring located between each washer and harp-arm, the end of the spring abutting against the washer being in the form of a circle or annulus, the face whereof is in a plane at right angles to the axis of the journal-pin, substantially as described.

6. The combination, with a trolley-harp having arms, a journal-pin mounted in said arms, a trolley-wheel mounted on said journal-pin and provided with a hub, and washers loosely mounted on the journal-pin at each end of said hub, of a coiled spring located between each washer and the adjacent harp-arm, said arm being provided with an aperture, and said spring being provided with an extension passing through said aperture and bent externally thereof to hold the spring in place, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB M. OLINGER.

Witnesses:

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