

No. 763,509.

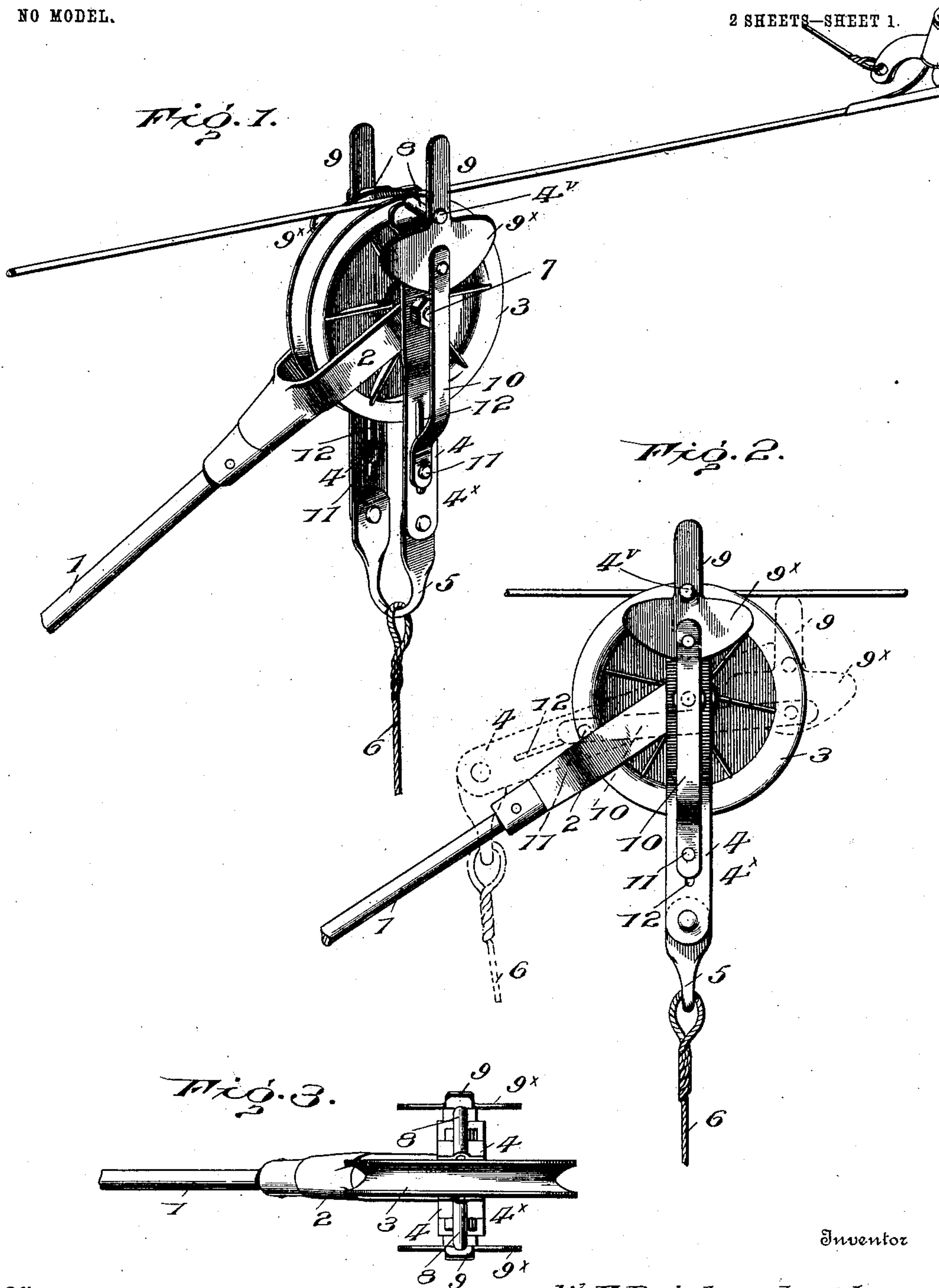
PATENTED JUNE 28, 1904.

W. F. REICHENBACH.  
TROLLEY GUARD AND FINDER.

APPLICATION FILED OCT. 15, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses  
*Jno. Imirie.*  
*W. Williams.*

Inventor  
*W. F. Reichenbach.*

By,  
*Ray. R. Gault.* Attorney

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2 SHEETS—SHEET 2.

Fig. 4.

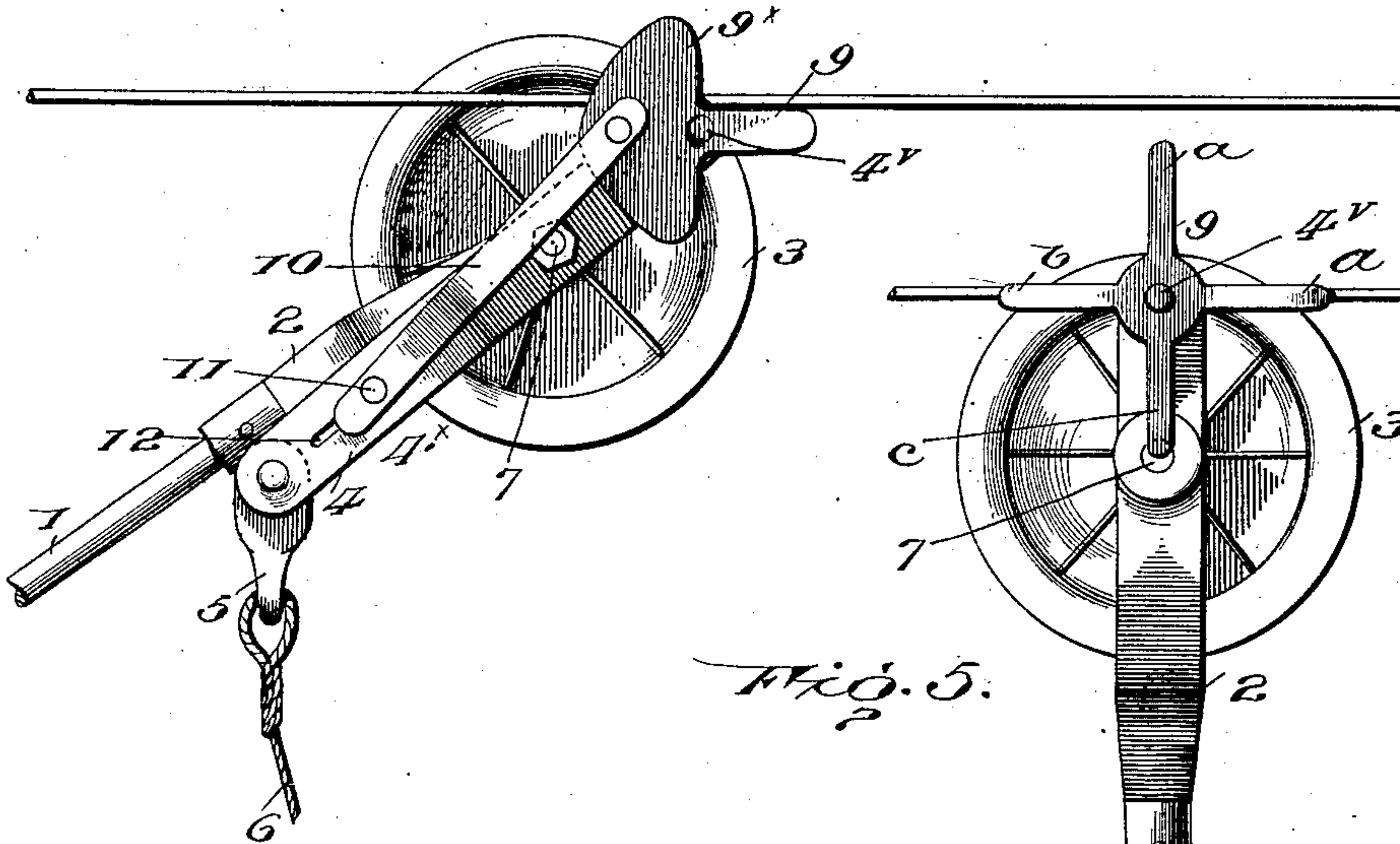


Fig. 5.

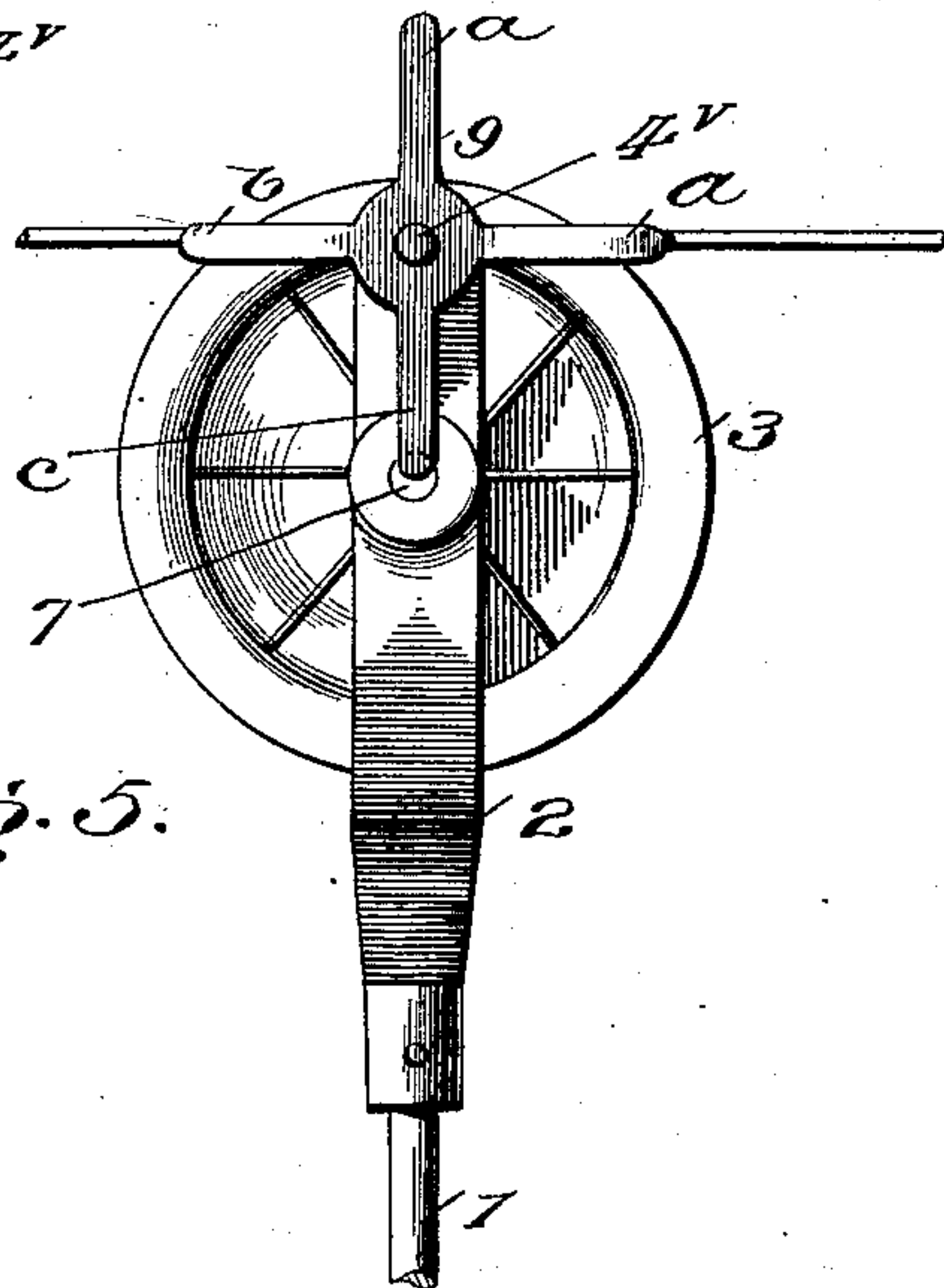


Fig. 6.

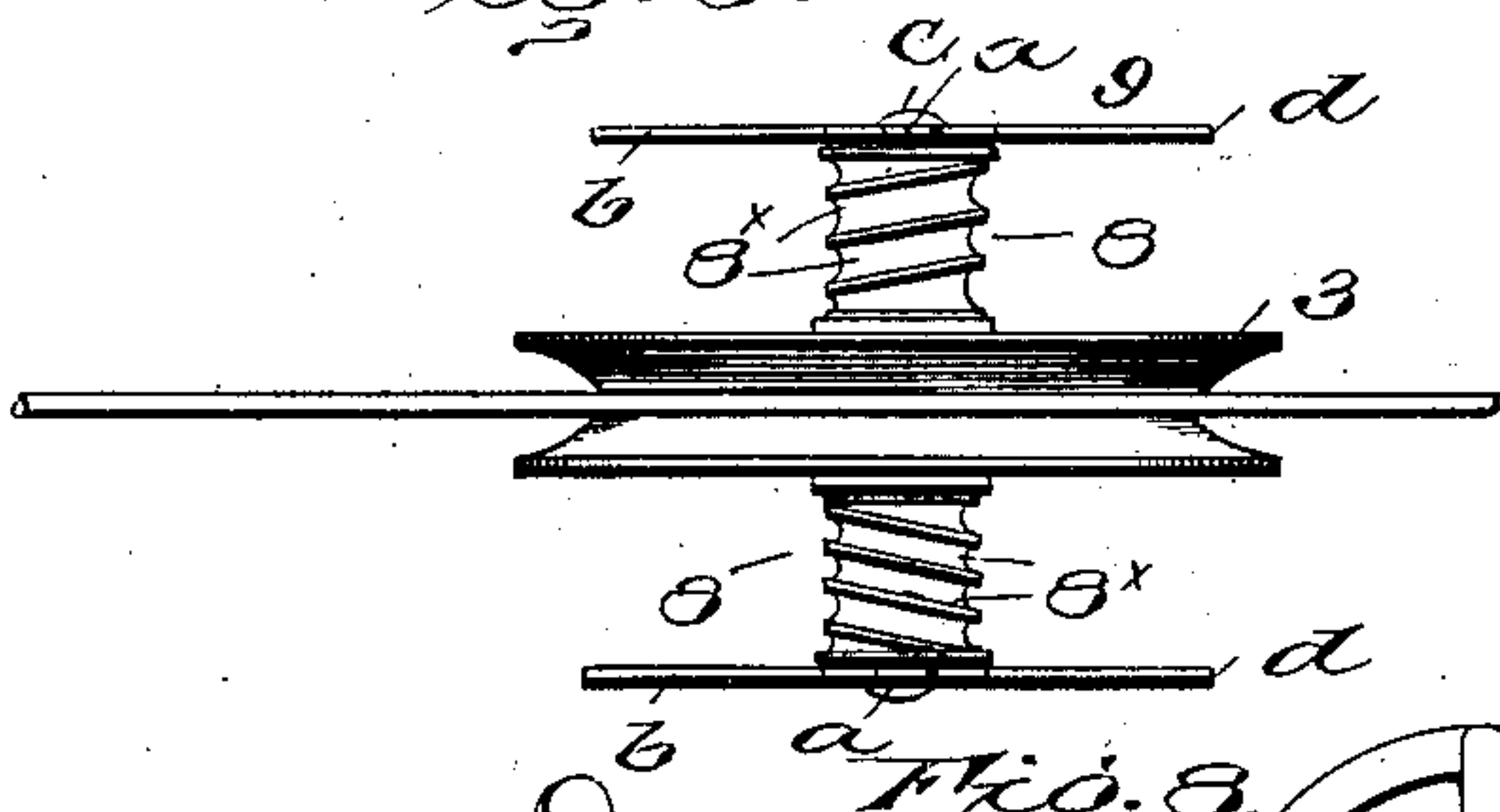


Fig. 7.

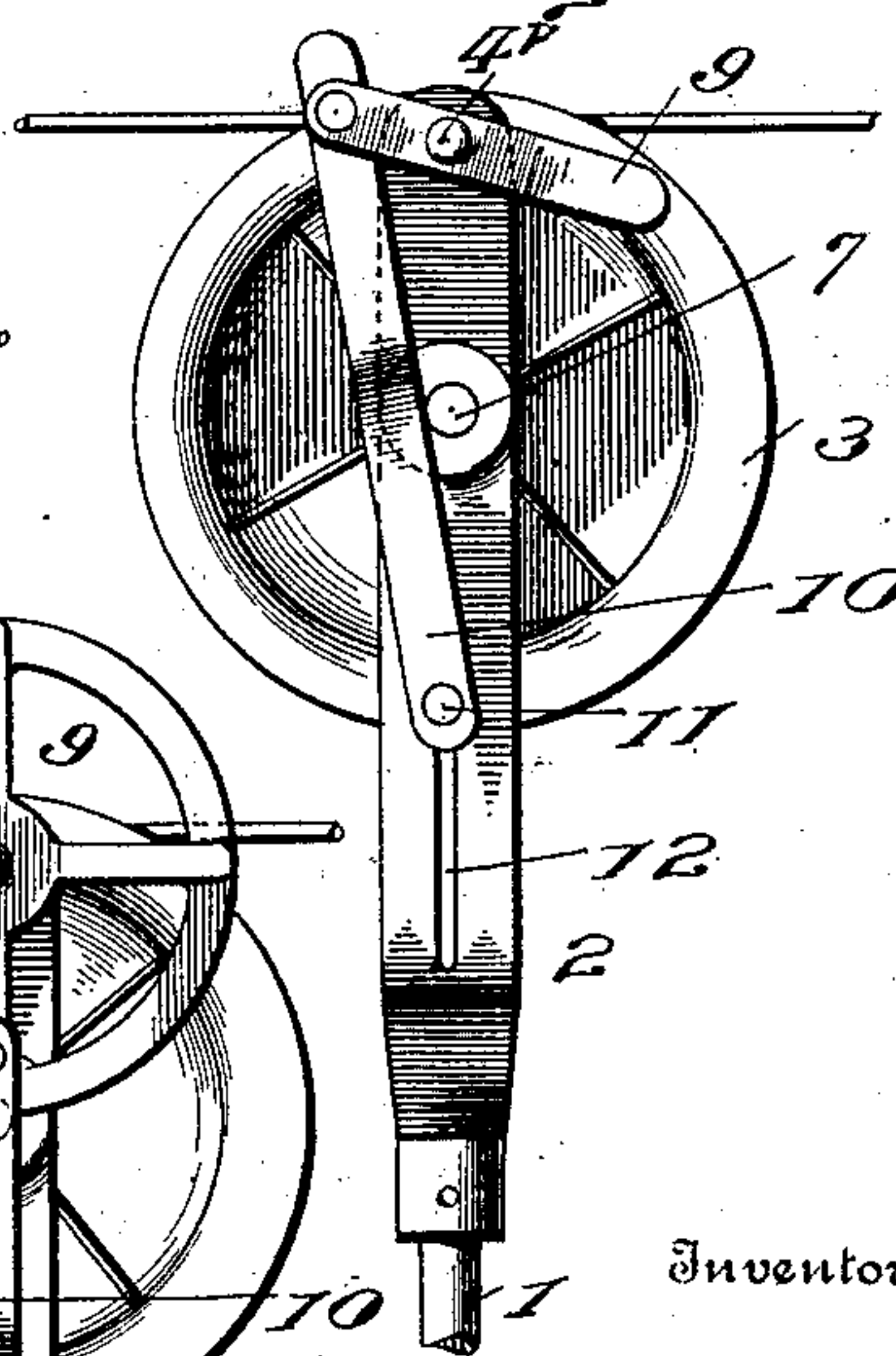


Fig. 8.

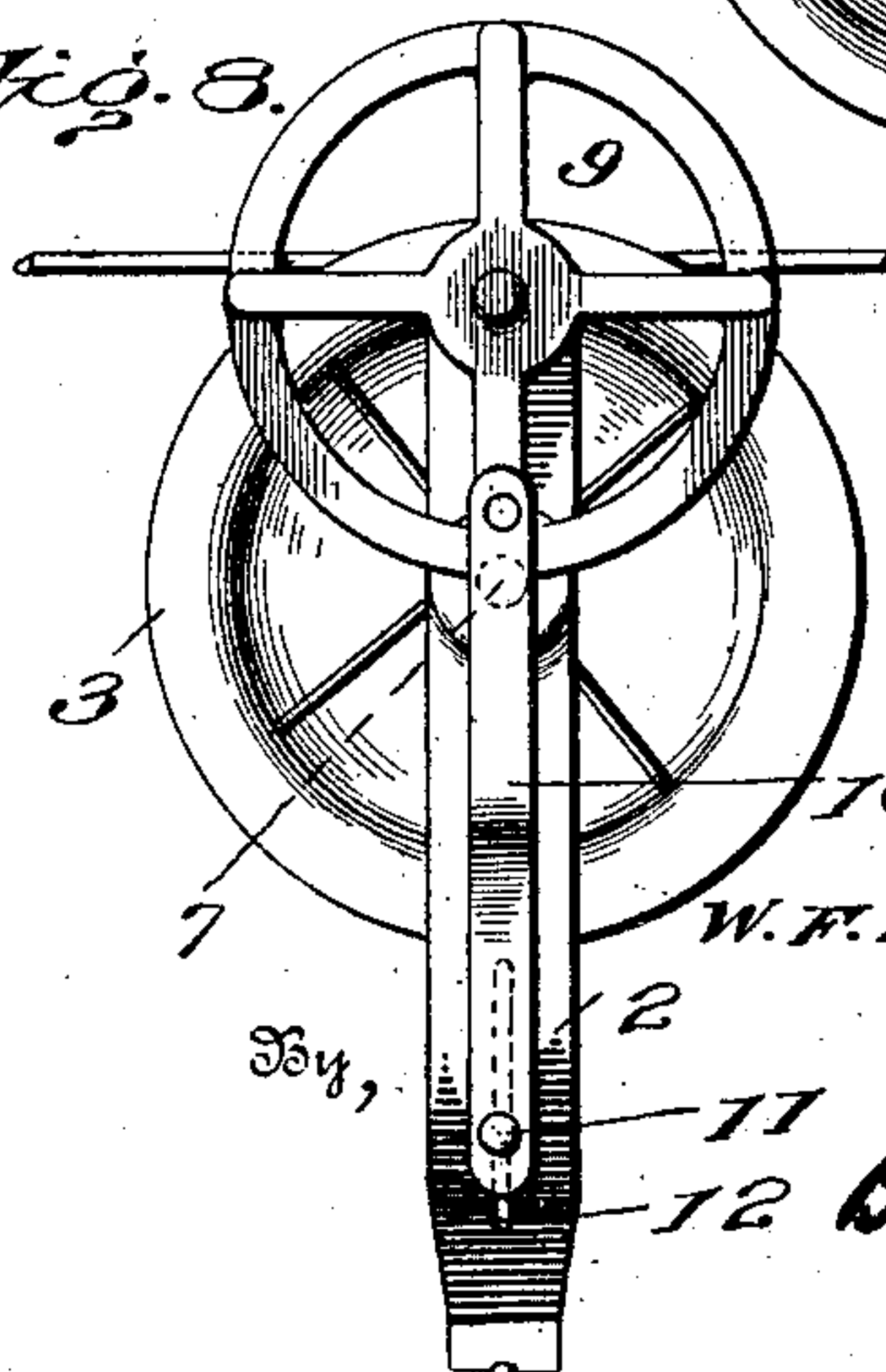
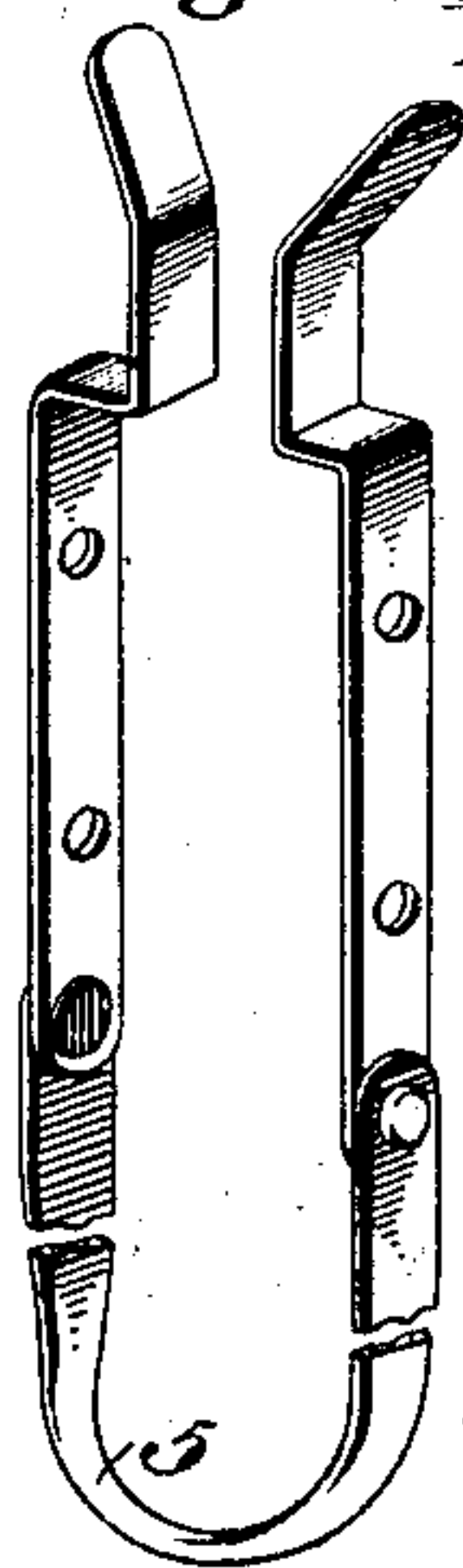


Fig. 9.



Witnesses

John Mirin

W. A. Williams

Inventor

W. F. Reichenbach.

By,

Ray. R. Patton Attorney



# UNITED STATES PATENT OFFICE.

WILLIAM F. REICHENBACH, OF ROCHESTER, NEW YORK.

## TROLLEY GUARD AND FINDER.

SPECIFICATION forming part of Letters Patent No. 763,509, dated June 28, 1904.

Application filed October 15, 1903. Serial No. 177,196. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM F. REICHENBACH, a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Trolley Guards and Finders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The invention relates to trolley guards and finders for electric railways, and has for its object to provide efficient means for preventing the escape of the cable from the trolley-wheel and for finding the cable when lost.

The invention consists in the construction herein described and pointed out.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of the improved device. Fig. 2 is a side elevation, the broken lines showing the situation the yoke and guards may and do assume provided the lower part of the yoke is overbalanced by the weight of its upper end with the guards and guides. Fig. 3 is a plan. Fig. 4 is a side elevation, the guard-supporting yoke being shown in normal situation and the guards tilted as by contact with a cross-wire, it being assumed that the contact was not sufficiently forcible to move the lower end of the yoke to its highest possible situation, indicated by broken lines in Fig. 2. Fig. 5 is a side elevation, and Fig. 6 a plan, said two figures illustrating modified details connected directly to the harp. Fig. 7 is a side elevation of a fender and a straight guard, the upper position of the fender being indicated by broken lines. Fig. 8 is an elevation of a guard provided with a rim. Fig. 9 is a perspective of a jointed yoke with fixed guards. Figs. 1, 2, 3, and 4 illustrate the preferred form of the invention.

Numeral 1 indicates a trolley-pole provided with a harp 2, in which is supported a wheel 3, having an axis 7, all in the usual manner.

4<sup>x</sup> denotes a yoke comprising two arms 4, pivotally supported on the wheel-axle or the wheel-trunnions, the arms being pivotally connected by a coupling 5, to which is attached the trolley-rope 6. To the upper end

of each arm 4 is fixed a pin 4<sup>v</sup>, on which freely turns a roller 8, which may be provided with a groove 8<sup>x</sup>, (see Fig. 6,) adapted when the roller is turned by the friction of a cable to return the cable onto the wheel. Upon the supporting pin or axis 4<sup>v</sup> of each roller 8 is pivotally supported a guard 9, having in a preferred form (see Figs. 1, 2, and 4) an enlarged lower end or foot 9<sup>x</sup>, by preference approximately of the form in outline of an ellipse having its longest axis transverse to the main or normally upper end of the guard and constituting a supplemental guard. Each guard 9 is loosely connected, usually by a link 10, to an arm 4 by means of a pin or stud 11, sliding in a slot 12, suitably formed in said arm. This link acts to prevent the lower ends of the arms 4 from being thrown up when the guards 9 strike the arch of a bridge or tunnel or other overhead obstruction and acts also as a fender under some circumstances and prevents the cable from being caught under the roller 8 or guard 9. The upper or free ends of the two guards normally inclose the cable laterally and prevent its leaving the vicinage of the wheel to and upon which it is guided and returned in case it is temporarily diverted from the wheel without escaping from between the guards. To prevent such escape in case the cable rubs against the free or upper end of the guard and turns it by friction toward a horizontal position, the guard is provided with a foot or transverse portion 9<sup>x</sup>, as stated, one end of which is in such case swung upwardly to the side of the cable, with the effect to provide a supplemental guard against the escape of the cable. The cable cannot by friction on the parts 9 and 9<sup>x</sup> move the foot 9<sup>x</sup> up any farther than permitted by the link 10. The movement of the link is limited by its connection with the yoke-arm. The operation draws the link upwardly, and the weight of the latter returns the guard when freed from the cable.

The particular improvement just described is not limited to the elliptical form of the foot, and some of the advantages and principles of operation may be secured by other forms of guards. Thus in Fig. 7 is shown a fender combined with a straight guard, ac-



according to which construction the upper end of the link and the lower end of the guard may be thrown up beside the cable by friction of the latter with good effect, particularly if the cable acts suddenly.

In Figs. 5 and 6 is shown a guard with four arms *a b c d*, neither link nor yoke being illustrated. Obviously if such a guard be sufficiently turned by the friction of the cable against arm *a* either arm *b* or *d* will be moved up to the side of the cable, and this would be true whether or not the link is used.

The invention claimed includes all such mere mechanical variations as are obvious and such as do not depart substantially from the described principles of operation and construction, and it is further evident that the described effect would not be injuriously affected by an increase in the number of arms or spokes, such as *a b*, nor by providing therewith a rim, as indicated in Fig. 8.

The described guards could also be used independently of the yoke and in connection with the harp 2, as indicated in Figs. 5 and 6. The guard with an enlarged or elliptical foot is usually preferred for the reason that it is less liable to be injured by contact with obstructions. Thus, for example, two arms extending above the pivot or axis of the guard might both strike an obstruction, with a resultant blow in line with a dead-center, and produce an injurious result.

The jointed coupling is useful in the case of an obstruction knocking down the yoke, as it permits a longer movement of the yoke—that is, a greater depression of its front end—as indicated in Fig. 2.

It is obvious that the link 10 and a pivoted guard could be used by direct connection with the harp, as indicated in Figs. 7 and 8.

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

1. In a trolley, a harp, a pulley having an axis supported in the harp, a yoke loosely supported on the pulley-axis and extending above it, and a gravitating guard pivotally supported in the yoke adjacent the periphery of the pulley, said guard having a supplemental guard connected thereto.

2. In a trolley, a harp, a pulley having an axis supported in the harp, a yoke loosely supported on the pulley-axis and extending above it, and a gravitating guard pivotally supported in the yoke adjacent the periphery of the pulley, said guard having a supplemental guard connected thereto, said supplemental guard having approximately the form of an ellipse.

3. In a trolley, the combination of a wheel, a wheel-support, a pivoted guard, a support for the guard, a link pivoted to the guard and slidably connected to the guard-support.

4. In a trolley, a harp, a pulley having an axis supported in the harp, a yoke loosely supported on the pulley-axis and extending above it, a gravitating guard pivotally supported in the yoke adjacent the periphery of the pulley, said guard having a supplemental guard connected thereto, and said supplemental part extending both forward and backward of the main guard for operation in either direction.

5. In a trolley, a wheel, an independent movable guard, a guard-support, a link loosely connected both to the guard and to its support, and means situated below the link for attaching a rope, said link being exterior to the support and its attachments and constituting throughout its entire length the outermost part of the trolley whereby it is adapted to fend off lines, limbs or other objects.

6. In a trolley, an independently-movable guard, a guard-support, and a link loosely connected both to the guard and its support, said link being movable endwise on the said guard-support.

7. In a trolley, an independently-movable guard, a guard-support, a link loosely connected both to the guard and its support, and a cord attached to the guard-support, said link being loosely connected to the support above the point of attachment of cord.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM F. REICHENBACH.

Witnesses:

HERBERT LEARY,

CHAS. E. CUNNINGHAM.