

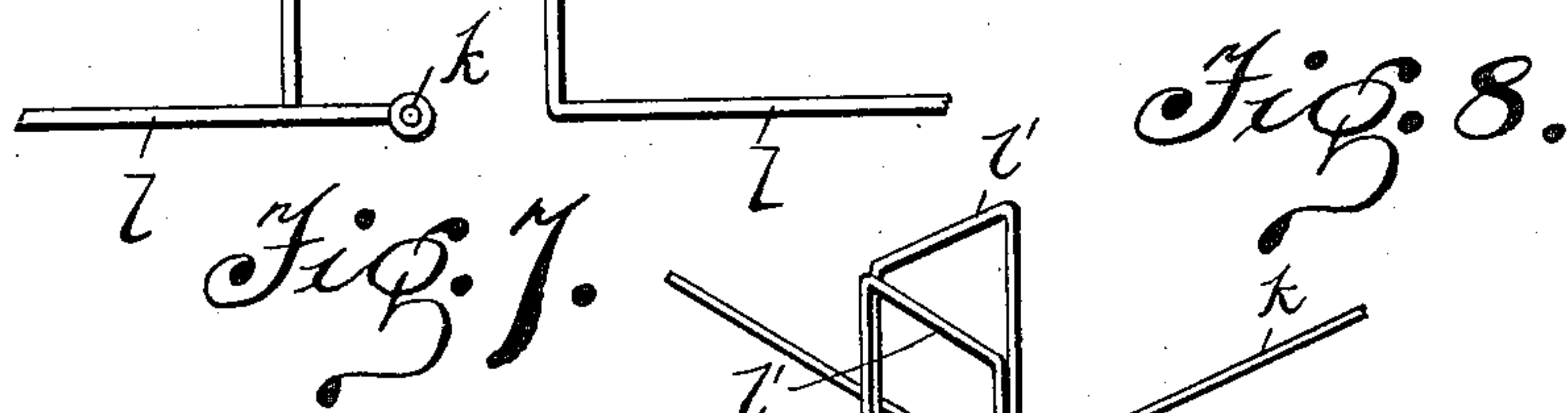
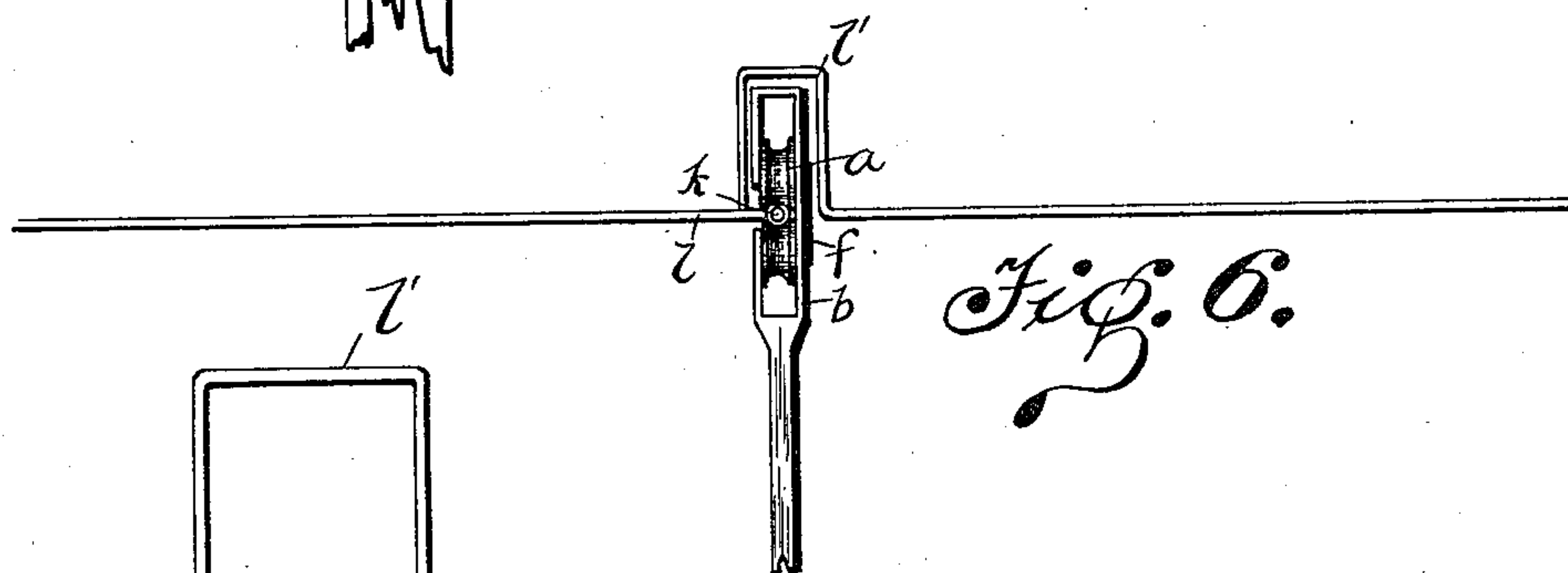
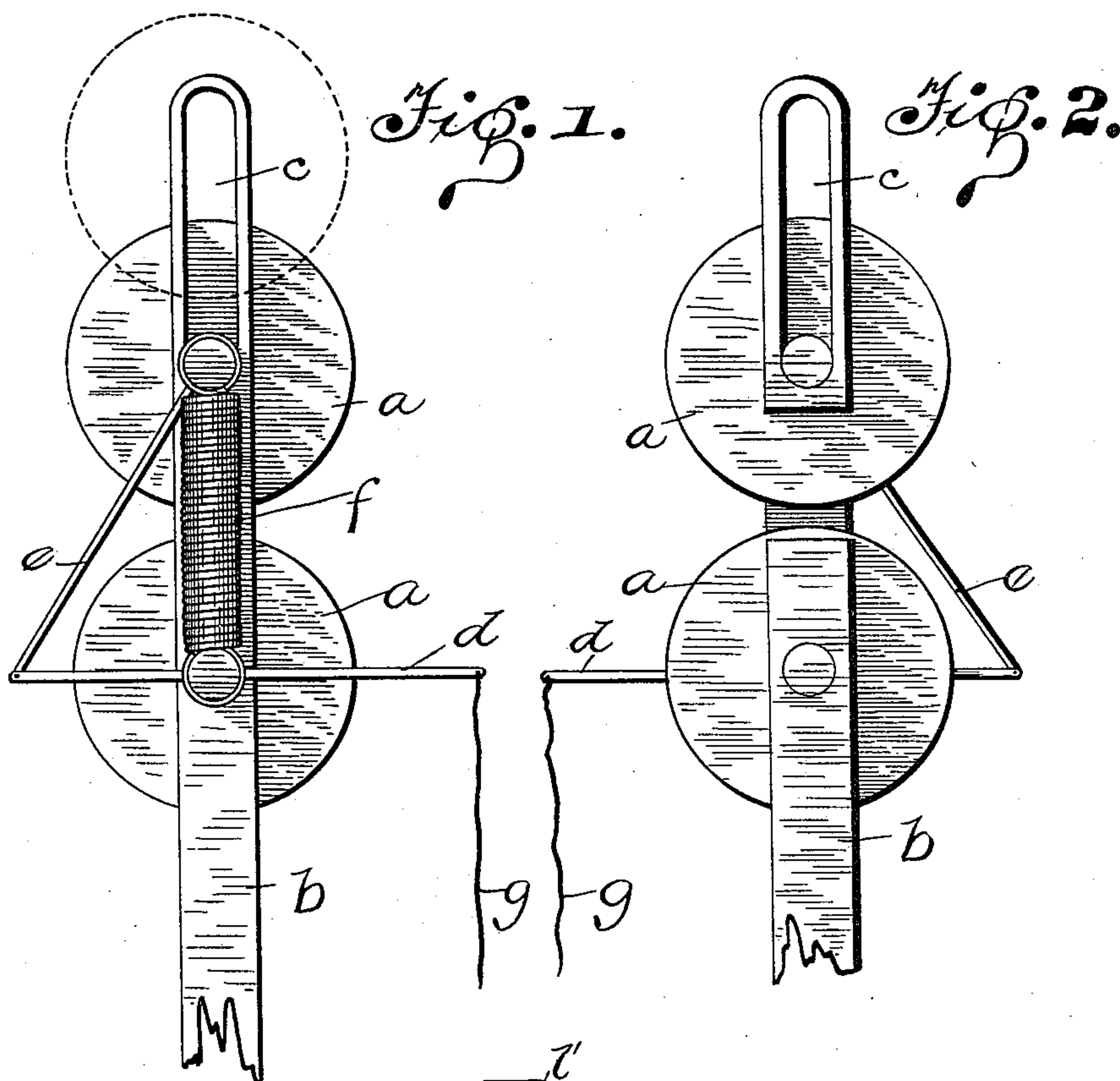
(No Model.)

2 Sheets—Sheet 1.

W. H. WALKER.
TROLLEY SYSTEM.

No. 579,728.

Patented Mar. 30, 1897.



Witnesses:-

A. R. Appleman
Wm. Evans

Inventor:

William H. Walker

By J. H. Stevenson
Att'y.

(No Model.)

2 Sheets—Sheet 2.

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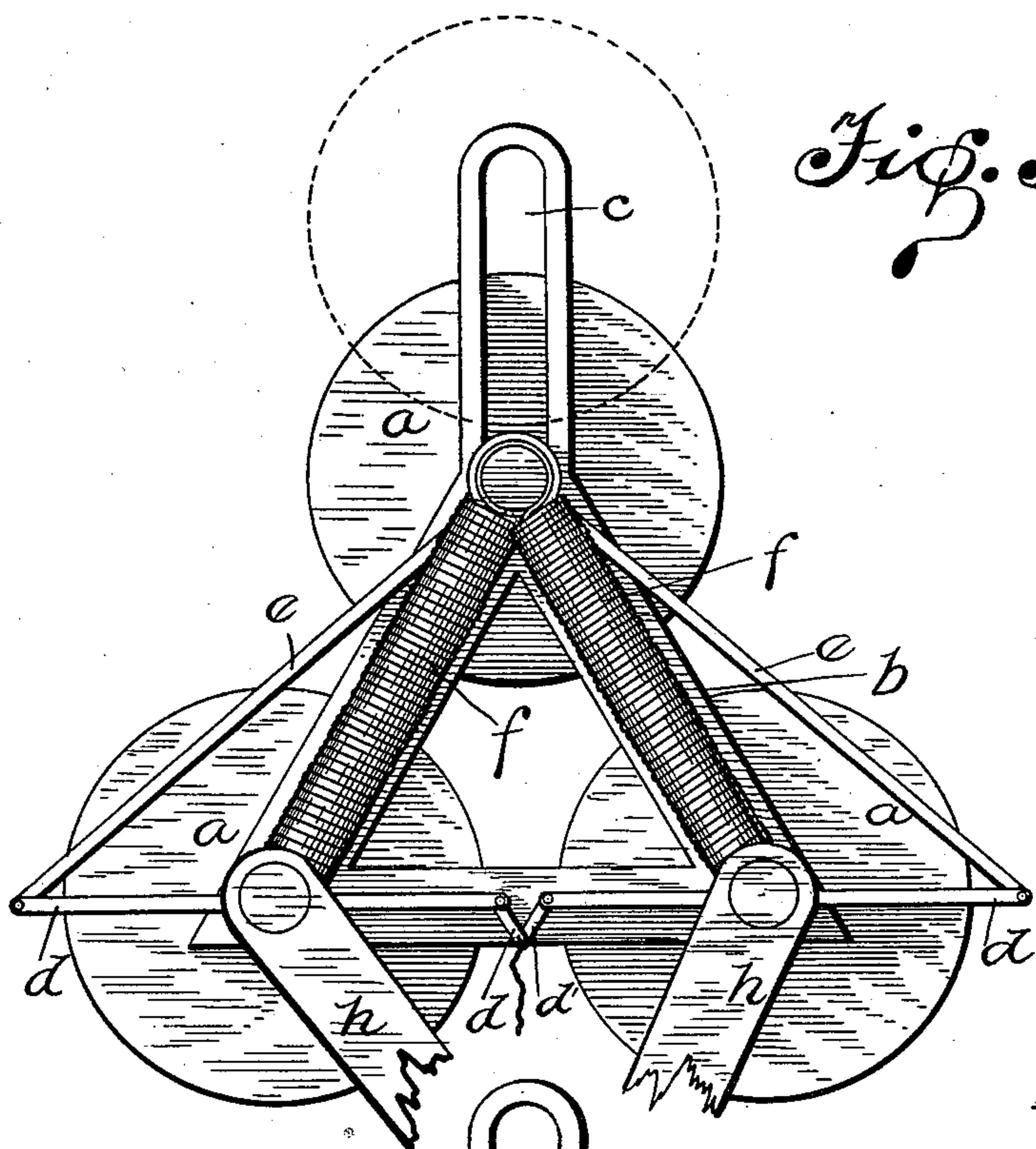


Fig. 3.

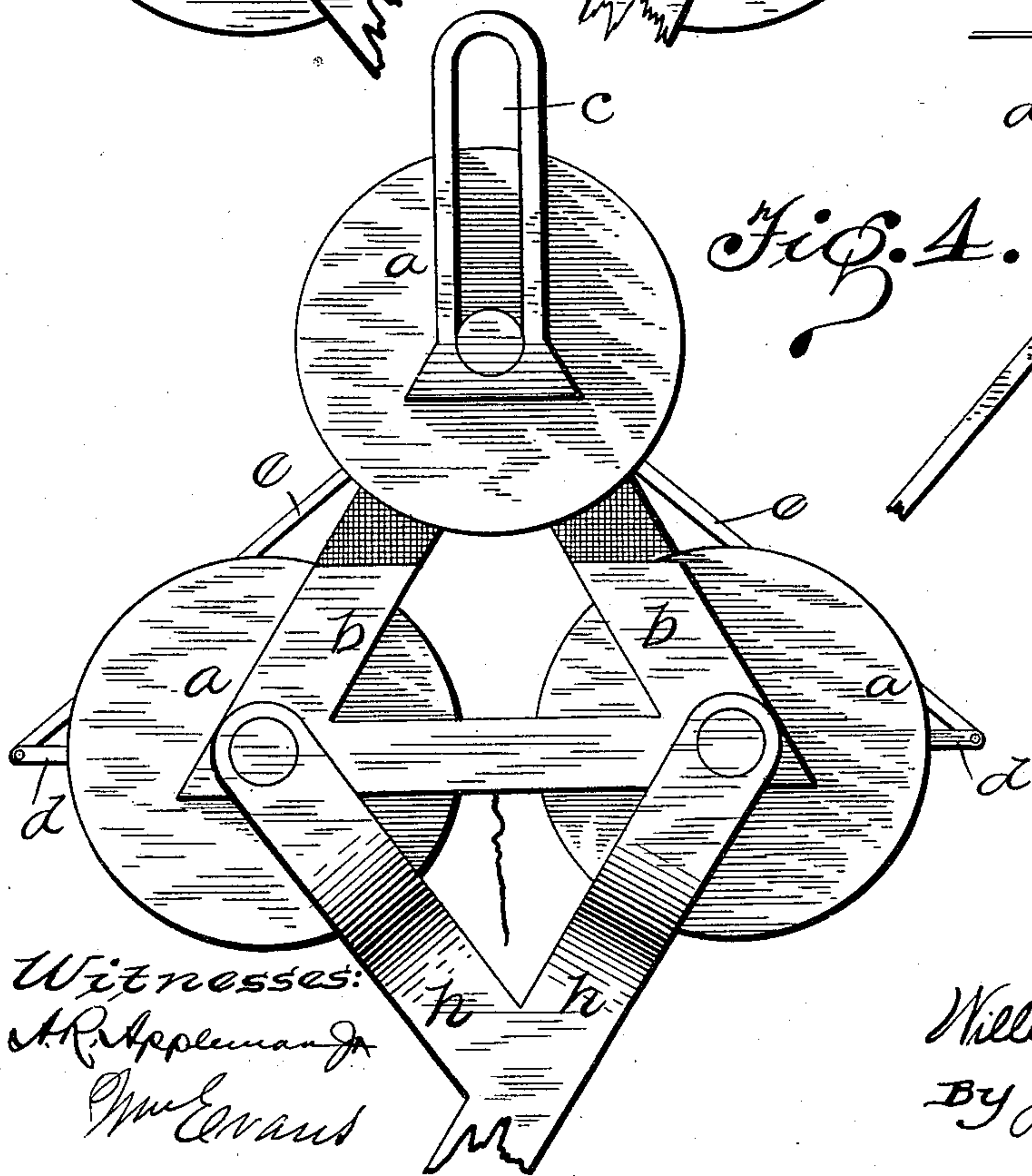


Fig. 4.

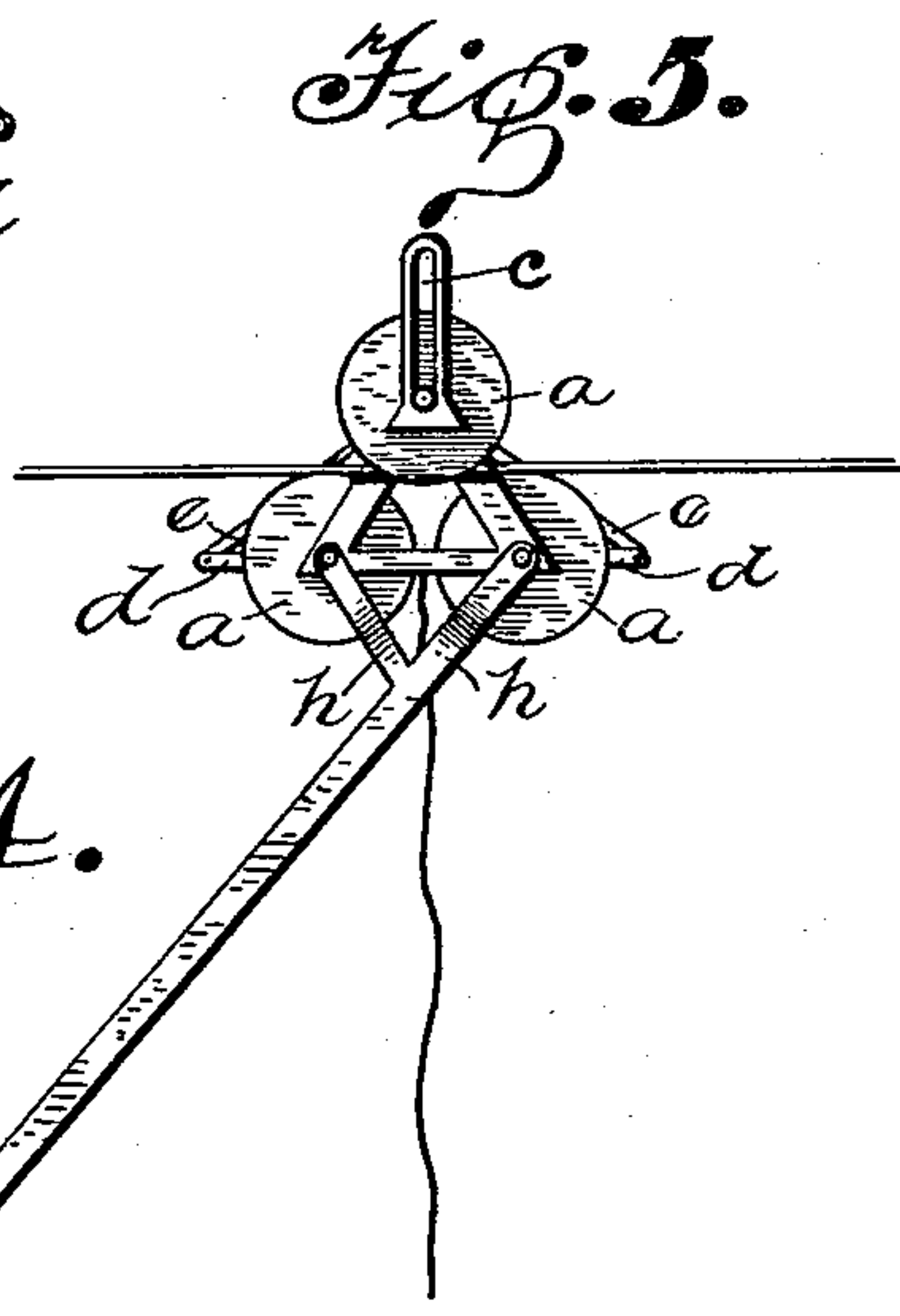


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM H. WALKER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO JAMES M. SCOTT, OF SAME PLACE, AND STEPHEN D. WHITE, OF HAYSVILLE, PENNSYLVANIA.

TROLLEY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 579,728, dated March 30, 1897.

Application filed June 26, 1896. Serial No. 597,062. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WALKER, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Trolley Systems; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in trolley systems, and relates particularly to an improved trolley and the manner of constructing the wire for the same to operate.

The invention has for its object to construct a trolley that when placed upon the wire will be held firmly in its position and prevented from jumping the wire when the trolley is rounding a curve or the car is running at a high rate of speed, as is frequently the case with the ordinary operation of the trolley.

The invention has for its further object to construct a trolley and wire whereby the above results may be obtained and that will be extremely simple in its construction, strong, durable, effectual in its operation, and comparatively inexpensive to manufacture; furthermore, a trolley that will be absolutely safe at crossovers, as the same will be prevented from leaving the wire and strike either the cross-line wire or the guide-wire, as is now frequently the case with the ordinary construction.

With the above and other objects in view the invention finally consists in the novel construction, combination, and arrangement of parts to be hereinafter more specifically described, and particularly pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like letters of reference indicate similar parts throughout the several views, in which—

Figure 1 is a side elevation of my improved preferred form of construction of the trolley.

Fig. 2 is a similar view of the reverse side of same. Fig. 3 is a side elevation of a modified form. Fig. 4 is a similar view of the reverse side of same. Fig. 5 is a view of the form shown in Fig. 4 in position on the wire. Fig. 6 is a front view of the trolley on the wire, showing the manner in which the same passes over the hood. Fig. 7 is a front view of the hood. Fig. 8 is a view of a double hood as constructed for crossovers.

In the drawings, *a* represents the trolley-wheels, which are curved on the upper periphery, as in the ordinary construction, the lower of said wheels being pivotally secured in the supporting-brace *b*, and the upper wheel being adapted to operate in the elongated slot *c*, provided in the upper end of the brace *b*. To the axle of the lower wheel *a* is secured an arm *d*, to the upper end of which is pivotally attached a rod *e*, which is inclined inwardly and attached to an axle of the upper wheel *a*, these axles being connected together by a coil-spring *f*. The free end of the rod *d* is adapted to receive a cord *g*, running to the platform of the car, for operating the trolley and placing the same in position on the wire.

In the modified form of construction shown in Figs. 3 and 4 the supporting-brace *b* is formed in a triangular shape, the two lower wheels being pivotally secured in alignment with each other and the upper wheel journaled in a slot *c* in the same manner as shown in Figs. 1 and 2, said upper wheel being also similarly connected by coil-springs arranged around the pivotal pin and to the pivotal pins of the lower wheels. Braces *h h* are arranged to each of the pivotal pins of these lower wheels and connected together at the lower ends, said braces being adapted to be secured to the trolley-pole proper. In this form of construction it will of course require two of the arms *d*, which are each connected by an upwardly-inclined rod *e*, connected to the pivotal pin of the upper trolley-wheel, the inner ends of the arms *d* being pivotally connected to short arms *d' d'*, to which is attached the cord *g*, thus operating the arms *d* and rods *e* in unison.

To permit of the operation of my improved trolley, the wire for the same to operate upon will necessarily be constructed as is shown in Figs. 6, 7, and 8. In these views *k* indicates

the curved wire; *ll*, the guide-wires, one of said guide-wires being formed at the current-wire with a hood *l'* and secured to the opposite guide-wire, as is fully illustrated in Fig. 7 of the drawings. To construct crossovers, these hoods will be formed in the manner fully illustrated in Fig. 8 of the drawings, the said wires being adapted to be secured together by means of soldering or any other suitable or convenient means.

The operation of my improved trolley system will be readily apparent from the views of the same which I have shown in the drawings, but in order to illustrate the same more clearly I will describe it as follows:

I will assume that the parts have been secured in their respective positions and it is desired to place the trolley on the wire. The operator grasps the rope or line *g*, and by pulling downward on the same raising the upper wheel *a*, causing the same to ride in the slot *c* through the medium of the arms *d* and rod *e*, when the trolley can be readily placed over the wire, and when the pull on the line is released it will allow the upper wheel *a* to resume its normal position, as shown in Figs. 1 and 2, with the trolley-wire *k* between the two slots. The operation for the modified form of construction will be the same as that heretofore given for the construction shown in Figs. 1 and 2, and a further description is deemed unnecessary. The manner in which the trolley passes the guide-wires will be readily apparent from the reference to Figs. 6 and 7 of the drawings, and the manner of operating at the crossover will also be readily observed from reference to Fig. 8.

By this construction of a trolley and trolley-wire the trolley will be retained in communication with the wire at all times until it is desired to remove the same, which can be easily done by a pull on the line *g*, thus raising the upper wheel *a*, allowing the removal of the trolley from the wire, in the ordinary construction, where there is nothing to hold the trolley in connection with the wires at all times and the same is liable to "jump" at the crossover and strike the guide-wires, breaking the same and causing the trolley-wire to fall and endanger the lives of persons on the

street. By my improved construction such danger is entirely obviated and the trolley will always be held firmly in position upon the wire at all curves in the road, no matter how sharp the curves may be, which result is very hard to obtain with the ordinary construction of trolleys.

It will be observed that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

1. In a trolley system, the combination of the trolley-head consisting of the bracket, wheels mounted therein and adapted to contact with opposite sides of an overhead conductor, one of said wheels being mounted on a fixed axle and another being mounted on an axle movable in a slot in said bracket, a lever connected with said fixed and movable wheel-axles and adapted to press the movably-mounted wheel away from the conductor, and means connecting the axles of the wheels for forcing the wheels into contact with the conductor.

2. In a trolley system, the combination of the trolley-wheel pivotally secured to the supporting-bracket, the lower wheels connected by means of levers and rods to the upper wheel, said upper wheel being adapted to be adjusted vertically in the slot in the bracket by means of said levers and rods, substantially as shown and described.

3. In a trolley system, the combination of the trolley-wheels pivotally supported in the brace, the axle of the upper trolley-wheel operating in the slot in said bracket, and an operating lever and rod whereby said upper wheel is adjusted vertically in combination with the trolley-wire provided with hoods to permit the free travel of the trolley, substantially as shown and described.

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

WILLIAM H. WALKER.

Witnesses:

PHILIP HEDDERICH,
WM. EVANS.