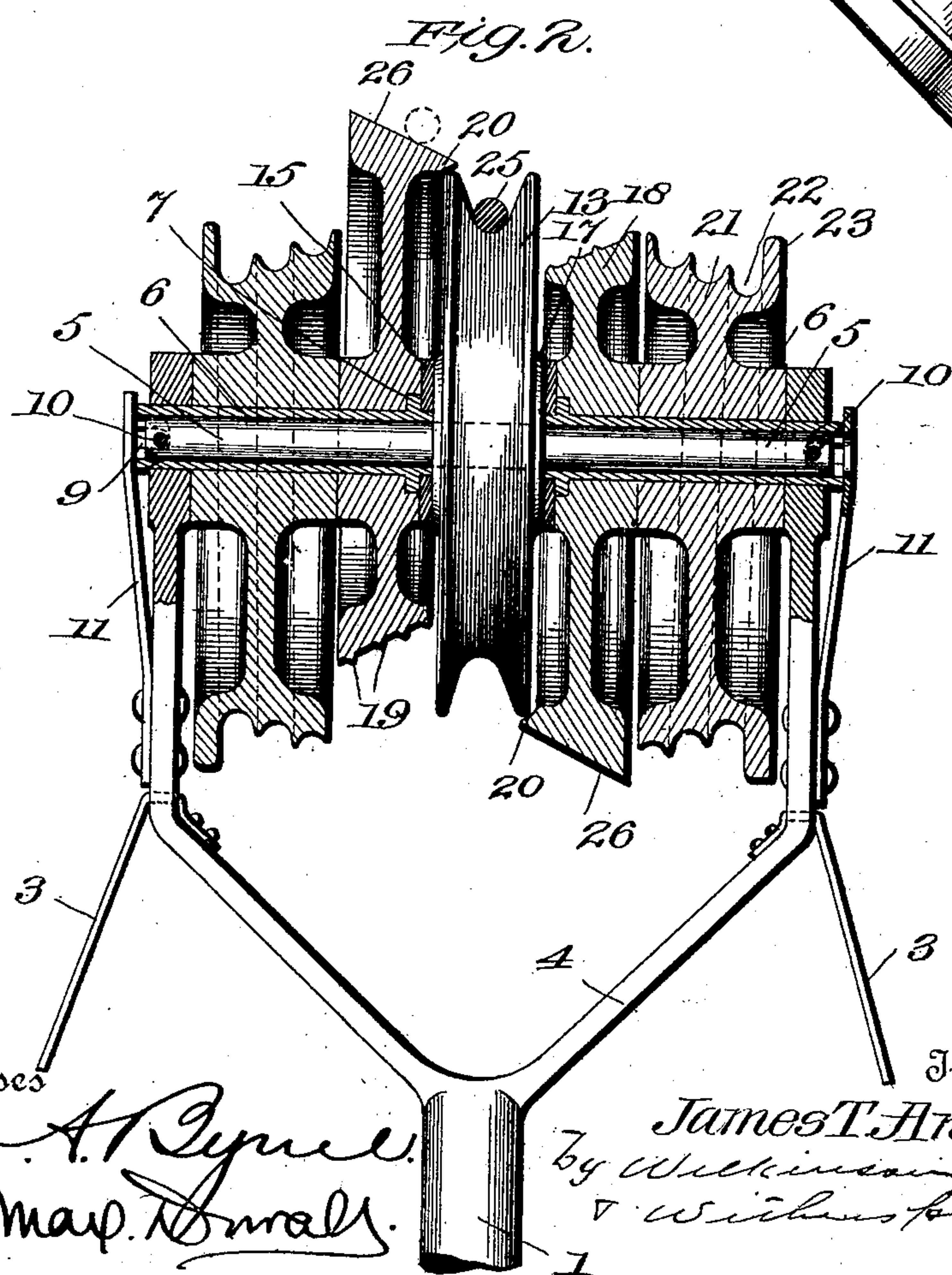
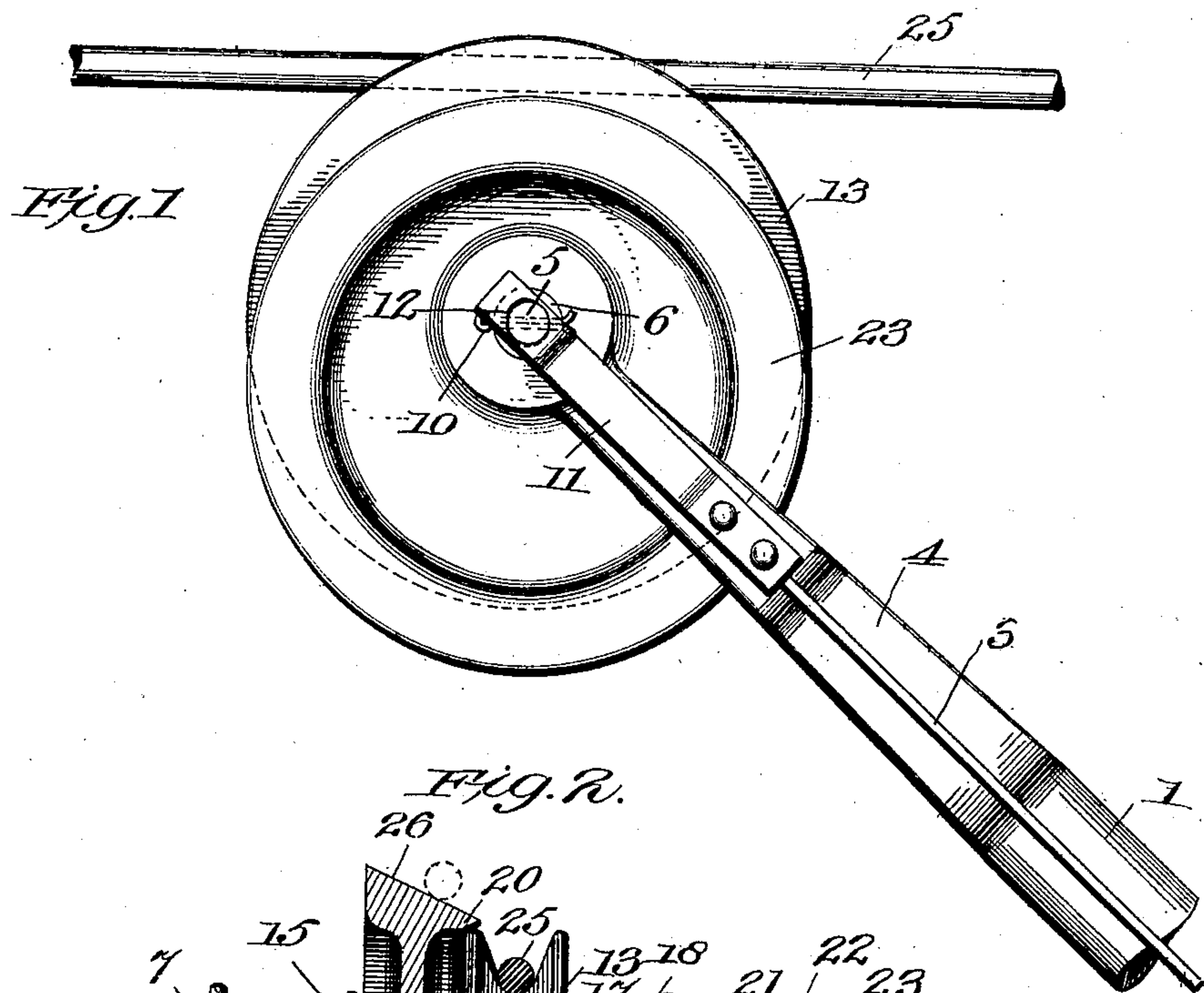


J. T. ANDREW.
SELF RESTORING TROLLEY.
APPLICATION FILED APR. 30, 1908.

912,055.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.



Witnesses

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W. Map. Small.

Inventor

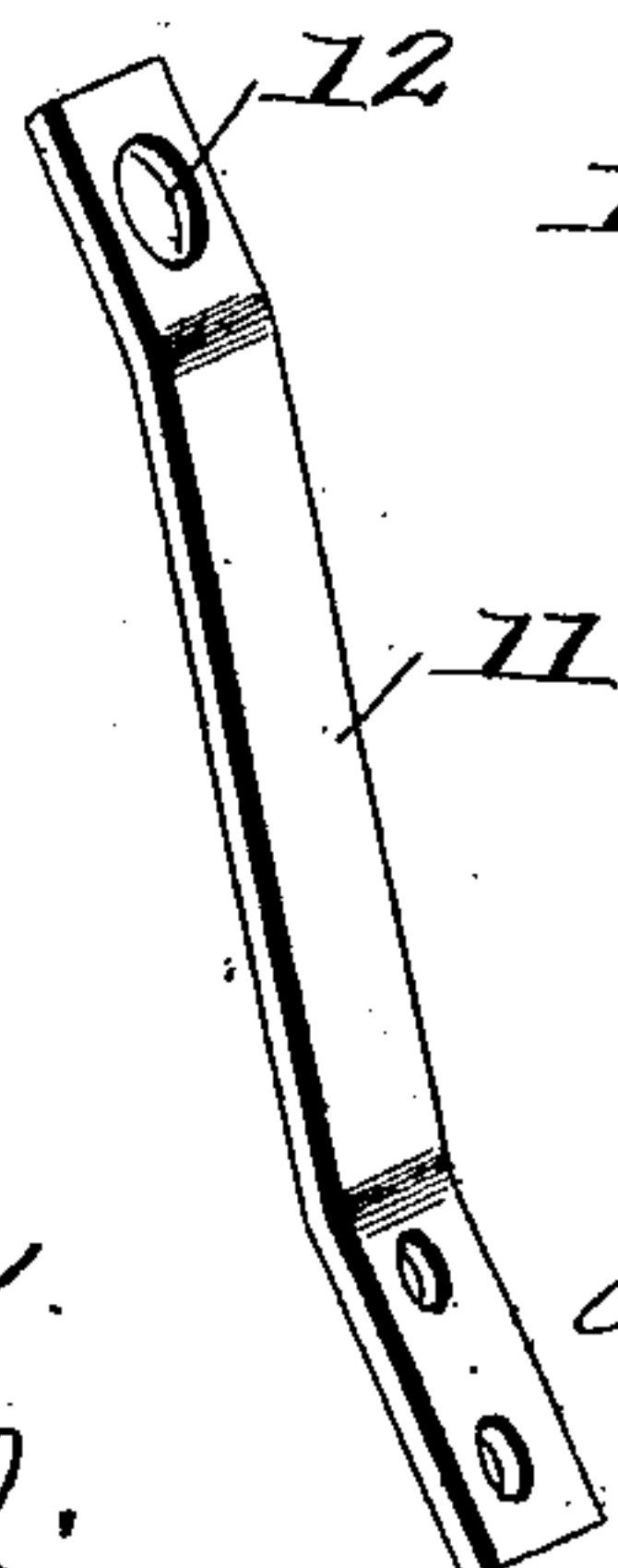
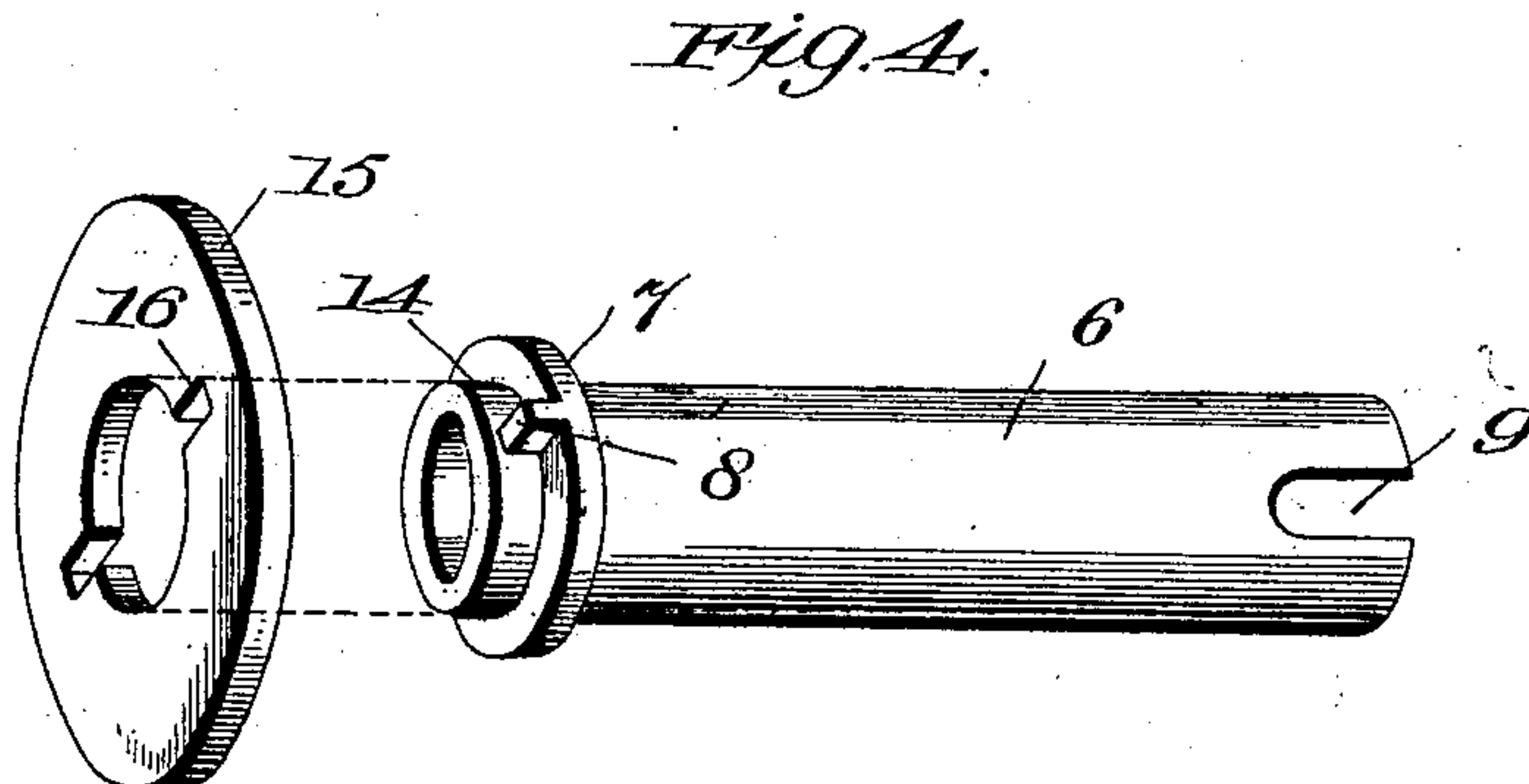
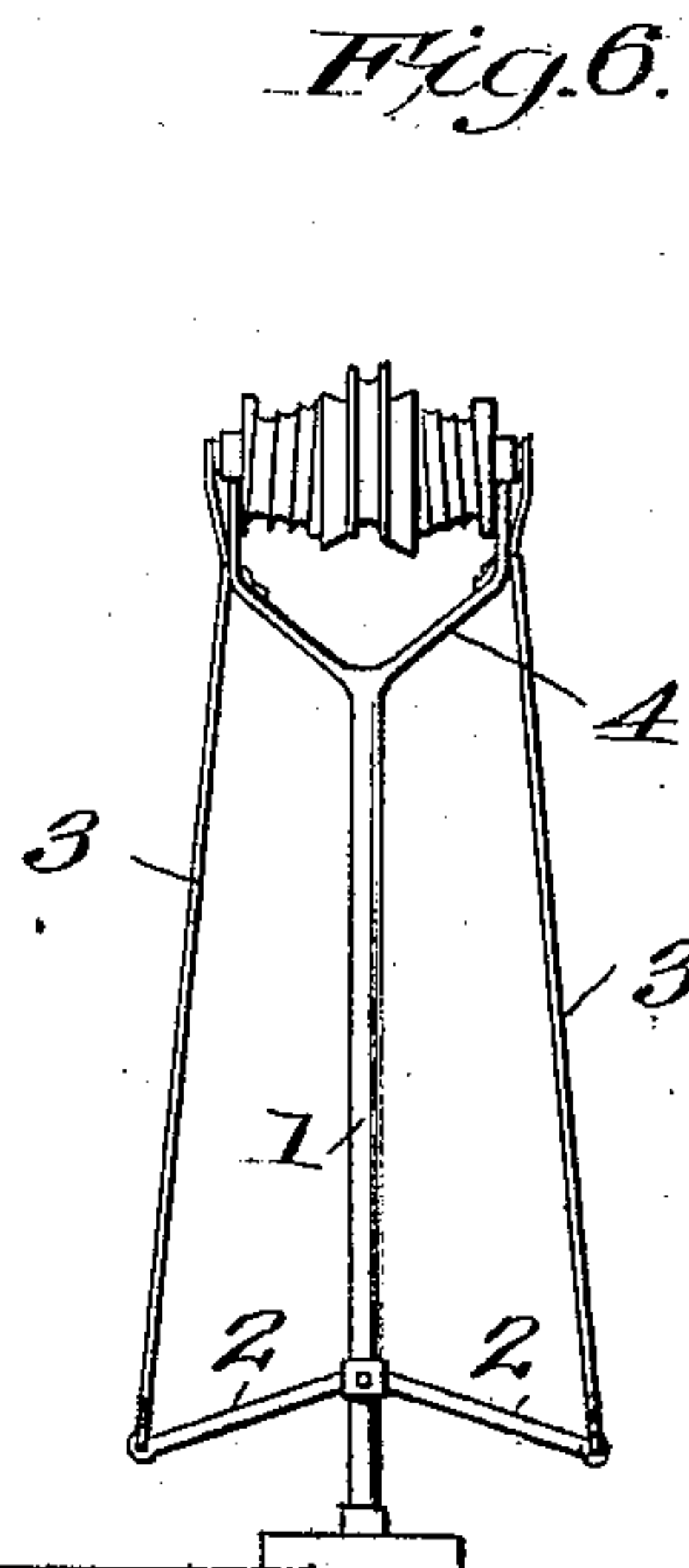
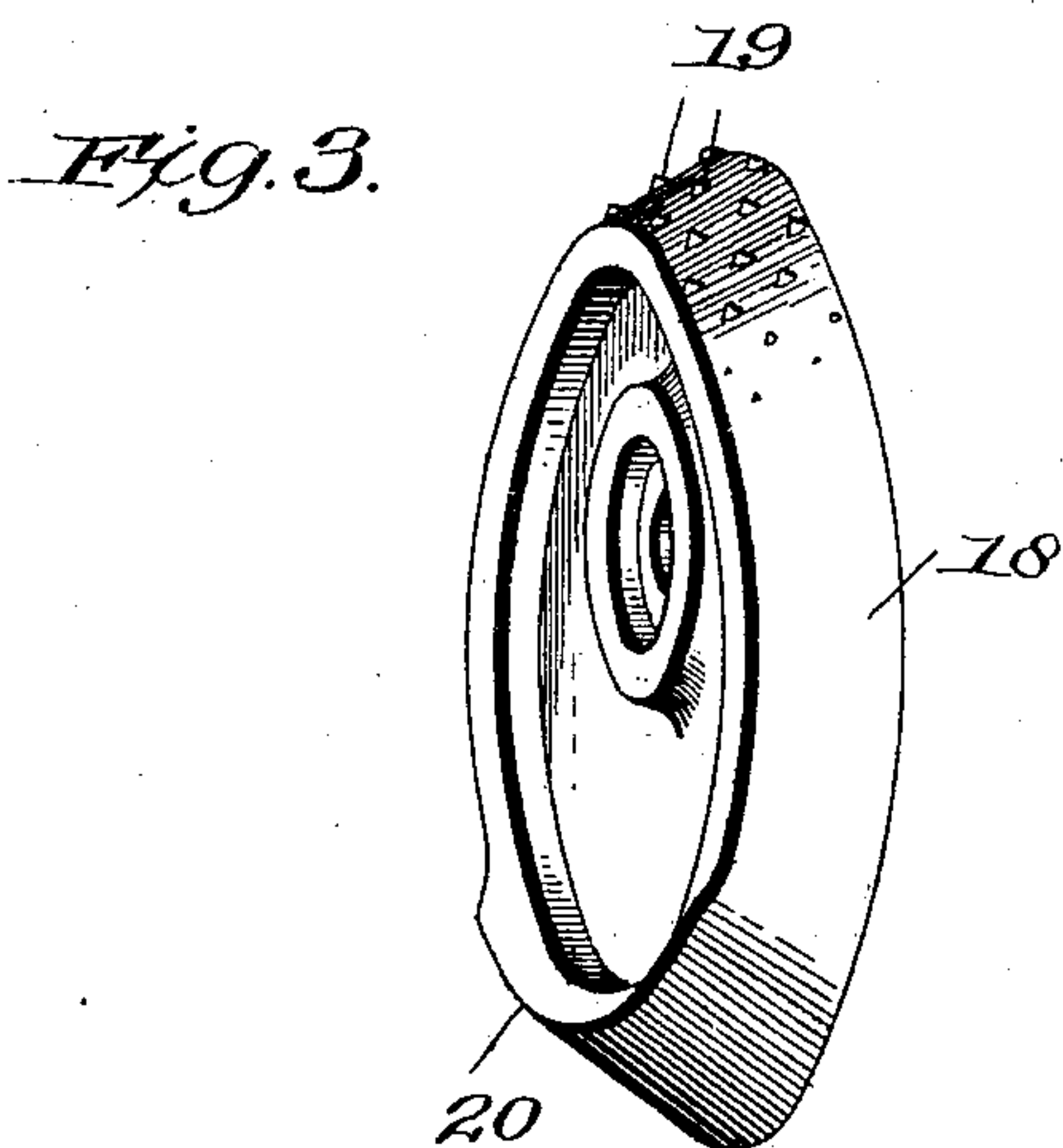
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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES T. ANDREW, OF MONTGOMERY, ALABAMA.

SELF-RESTORING TROLLEY.

No. 912,055.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed April 30, 1908. Serial No. 430,150.

To all whom it may concern:

Be it known that I, JAMES T. ANDREW, a citizen of the United States, residing at Montgomery, in the county of Montgomery and State of Alabama, have invented certain new and useful Improvements in Self-Restoring Trolleys; 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 appertains to make and use the same.

My invention relates to a self restoring trolley, and has for its object the production of such a trolley that will be simple to construct, certain in action, and more efficient in restoring the trolley wheel to the wire than those heretofore proposed.

My invention particularly relates to an improvement over the device disclosed and claimed in my former patent No. 837,771, and dated December 4, 1906; and it consists in the novel combination and construction of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification, in which like numerals refer to like parts in all the views:—Figure 1, is a side elevational view of my self restoring trolley. Fig. 2, a sectional view of the same. Fig. 3, a perspective view of one of my restoring cams. Fig. 4, a detached view of the sleeve on which the restoring parts are mounted. Fig. 5, a perspective detached view of the contact spring, and Fig. 6, an elevational view, on a much smaller scale than that of the preceding figures, of a trolley pole provided with my invention showing the guard wires.

1, represents the trolley pole; and 2, a pair of arms normally inclined, as shown, and adjustable up and down the pole proper. To the outer ends of these arms are attached the lower ends of the guard wires 3, and the upper ends of said wires are secured to the wings of the harp 4, as best shown in Fig. 2. Passing through the upper extremity of the harp is an axle 5, surrounded by two sleeves 6, provided with the slots 9 and the flanges 7, having the lugs 8. Pins 10 pass through the outer ends of the axle 5, and secure the same to the harp, while the slots 9 in the sleeves 6, receive said pins and allow for a longitudinal motion of said sleeves on said axle. Secured to the harp is a pair of

contact springs 11, provided with holes 12 in their upper ends through which the axle 5 may pass when changing the trolley wheels proper. The upper end of these springs press against the outer ends of said sleeves 6, as shown, and tend to force the same inward toward the trolley wheel 13. On the inner end of each sleeve 6, is a seat 14, to receive a washer 15, provided with slots 16, adapted to receive the lugs 8, which preferably terminate short of the extreme end of the sleeve, as shown.

The trolley wheel 13, is preferably provided with hubs 17, against which the washers 15 are normally pressed by the springs 11, when the parts are assembled, and thereby a continuous electric circuit is always secured between said springs and said trolley wheel.

Electrically mounted on the sleeves 6 on each side of the trolley wheel are the cam disks 18, provided with suitable roughened or friction surfaces 19, extending partially around the same, as shown. These disks are also provided with the projecting lips 20, adapted to overlie the rim of the trolley wheel, as best shown in Fig. 2, and for a purpose to be presently disclosed.

On the outer sides of the cam disks 18, are also mounted on the sleeves 6, the eccentric screw threaded cams 21, provided with the outwardly and downwardly tapering and oppositely disposed screw threads 22. These cams 21, are provided on their outer edges with the flanges 23, as shown, which owing to the depth of the screw threads at their bases, serve to catch the wire before it can leave the cam surfaces.

The operation of my self restoring trolley is as follows:—All the parts being in metallic connection, current is conducted through the same down the pole 1, so that no matter where the wire 25 strikes, a current is obtained through the motors, although the path above disclosed through the wheel 13, the washers 14, axles 5 and springs 11, is preferable. When the wire leaves the trolley wheel 13, for any cause, the upward pressure of the pole will cause the same to contact on one of the independently operating cams 18 or 21. If it strikes one of the cams 18, its roughened surface 19 will immediately cause the same to rotate, and thereby cause the inclined surface 26 to rise above the rim of the wheel 13, as best shown in Fig. 2,

whereupon the wire 25 will slide down the incline 26, and be delivered to the trolley wheel. While in this position the incline 20 overlies the rim of the trolley wheel, as shown, and insures the safe placing of the wire in the groove of the said wheel. Should the wire strike one or the other of the screw threaded cam disks 21, the same will likewise turn on the sleeve 6, thereby lifting the wire above the cam disk 17; while the screw threads 22 will cause the wire to be translated back onto the said disk, when the latter will in turn lift the wire above the wheel 13 and deliver it into the groove of said wheel, as above described. After the wire has been returned by either of the above operations, the disks 18 and 21 automatically return to their normal positions shown on the right hand side of Fig. 2, owing to the preponderance of the weights below the axis 5; and they are therefore at all times ready for use. When the trolley wheel reaches a switch or turn out, and should it leave the wire and tend to rise or be caught in the angle of the V of such switch or turn out, the inclined guard wires 3 will immediately strike the sides of said V and cause the trolley wheel to duck and thereby be thrown out of the same. In other words, these guard wires 3 will prevent the harp, or wheels, from being jammed in the faces of switches and like constructions. It will thus be seen that my construction does away with all springs for returning the cams; that all the parts are simple in construction and operation; and that the cam disks can be readily cast. Furthermore, my longitudinally sliding sleeves 6, and washers 15, serve under the influence of the springs 11, to keep the trolley wheel 13 in its central position at the middle of the axis 5; while the collars 7 regulate the distance from, and prevent the cam disks jamming said wheel. The lugs 8 on the collars 7, prevent the washers from turning with said wheel, and thereby insure a rubbing contact. In other words, this portion of my construction insures at all times a continuous metallic connection between the wheel 13 and the springs 11, thereby lessens the tendency to spark between the parts, and consequently lessens the rapid deterioration to which corresponding parts are subjected at present. Furthermore, these sleeves serve as a sort of bushing for the cam disks and protect the axle from wear, and therefore from such sparking as usually arises from such wear.

Having now described my invention, what I claim is:—

1. In a trolley, the combination of a trolley wheel; an axle on which the same is mounted; a pair of longitudinally movable sleeves on said axle, provided with washers adapted to contact with said wheel, a pair of cam disks on said sleeve on each side of

the wheel and springs adapted to keep said washers in contact with said wheel, substantially as described.

2. In a trolley, the combination of a trolley wheel; an axle on which the same is mounted; a pair of longitudinally movable sleeves, provided with washers adapted to contact with said wheel; means on said sleeves for preventing said washers from turning; means to prevent said sleeves from turning; and springs adapted to keep said washers in contact with said wheel, substantially as described.

3. In a trolley, the combination of a trolley wheel; an axle on which the same is mounted; a pair of longitudinally movable sleeves provided with slots at one end, and with collars and lugs at the other end; pins passing through said axle and slots, to prevent said sleeves from turning; washers on said sleeves receiving said lugs and adapted to contact with said wheel; and springs for forcing said sleeves toward said wheel, substantially as described.

4. In a trolley, the combination of a trolley wheel; an axle on which the same is mounted; a pair of longitudinally movable sleeves provided with slots at one end, and with collars and lugs at the other end; pins passing through said axle and slots to prevent said sleeves from turning; a pair of independent cam disks loosely mounted on each sleeve; washers on said sleeves receiving said lugs and adapted to contact with said wheel; and springs for forcing said sleeves toward said wheel, substantially as described.

5. In a trolley, the combination of a trolley wheel; an axle on which the same is mounted; a pair of longitudinally movable sleeves provided with washers adapted to contact with said wheel; a pair of independent cam disks on each side of said wheel mounted on said sleeves; means on said sleeves for preventing said washers from turning; means to prevent said sleeves from turning; and springs adapted to keep said washers in contact with said wheel, substantially as described.

6. In a trolley, the combination of a trolley wheel; an axle on which the same is mounted; a pair of longitudinally movable sleeves provided with slots at one end, and with collars and lugs at the other end; a pair of independent cam disks on each side of said wheel mounted on said sleeves; pins passing through said axle and slots to prevent said sleeves from turning; washers on said sleeves receiving said lugs and adapted to contact with said wheel; and springs for forcing said sleeves toward said wheel, substantially as described.

7. In a trolley, the combination of a trolley wheel; an axle on which the same is mounted; a pair of longitudinally movable

sleeves provided with slots at one end, and with collars and lugs at the other end; a pair of independent cam disks on each side of said wheel mounted on said sleeves; pins
5 passing through said axle and slots to prevent said sleeves from turning; a pair of independent cam disks loosely mounted on each sleeve; washers on said sleeves receiving said lugs and adapted to contact with said wheel; and springs for forcing said 10 sleeves toward said wheel, substantially as described.

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

JAMES T. ANDREW.

Witnesses:

W. MAX. DUVALL,

GEO. A. BYRNE.