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Patented Oct. 11, 1898.

C. L. JEFFREY.  
ELECTRIC TROLLEY DEVICE.

(Application filed Jan. 12, 1898.)

(No Model.)

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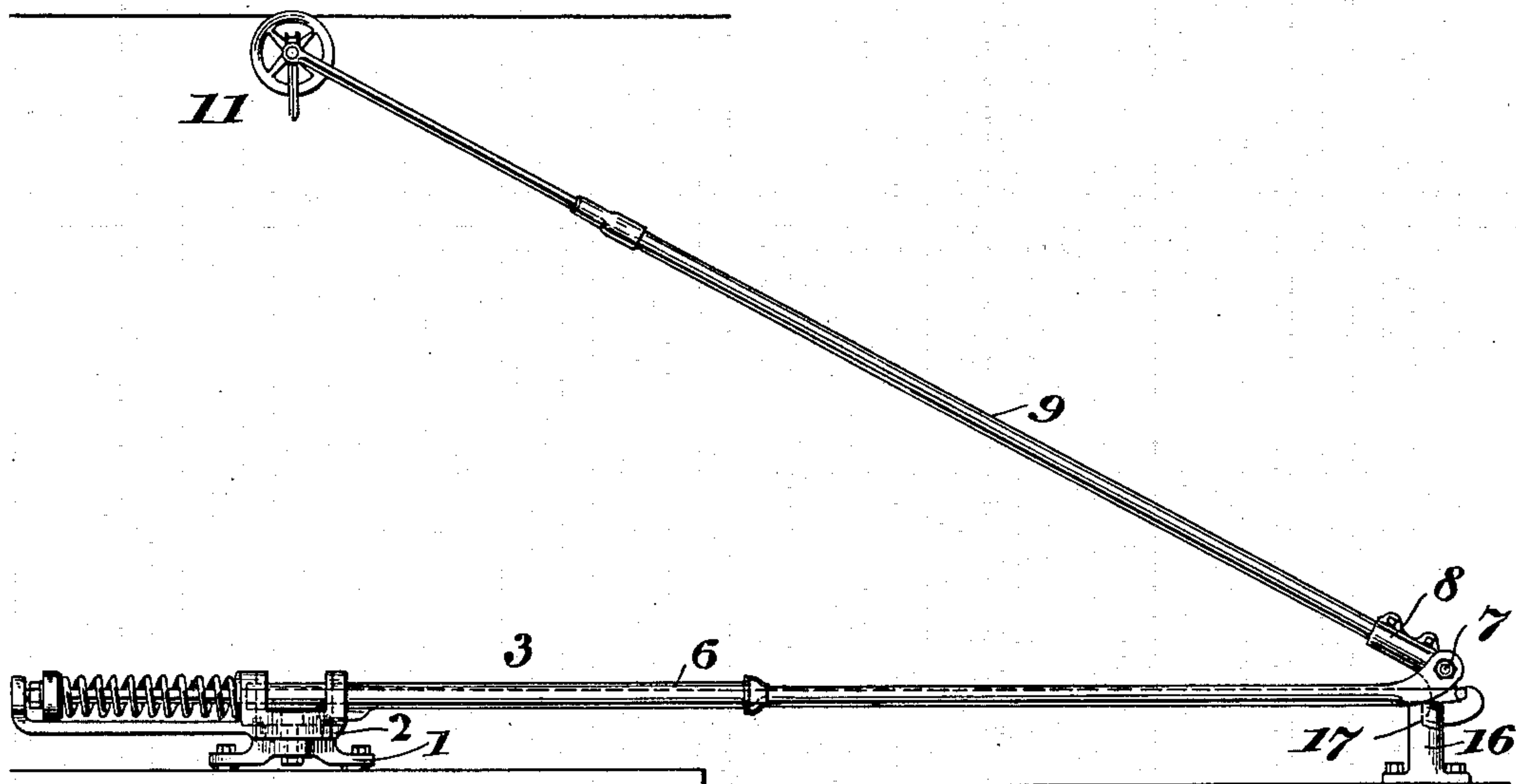


Fig. 1.

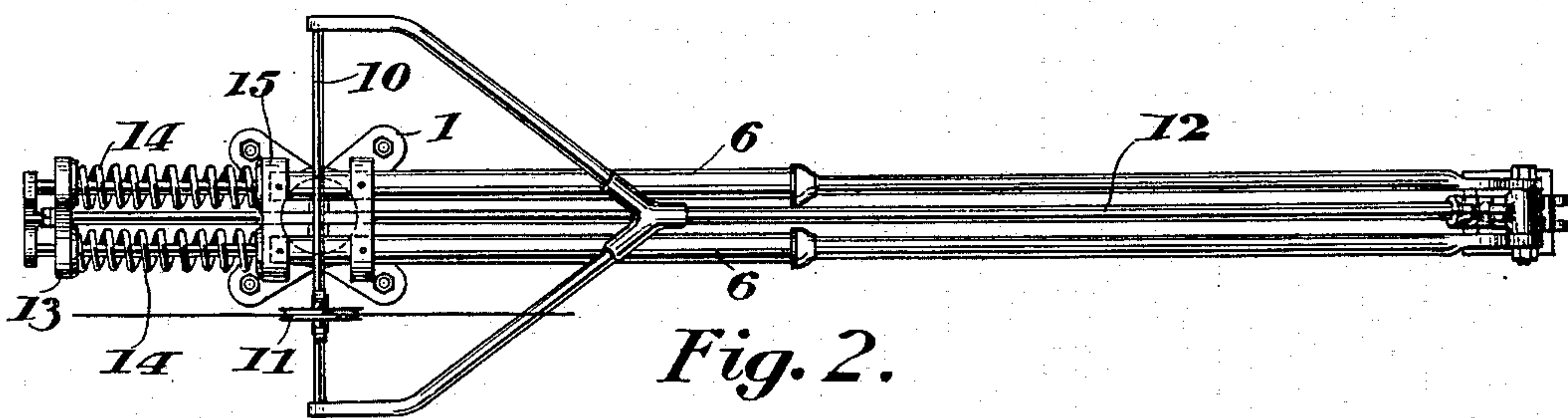


Fig. 2.

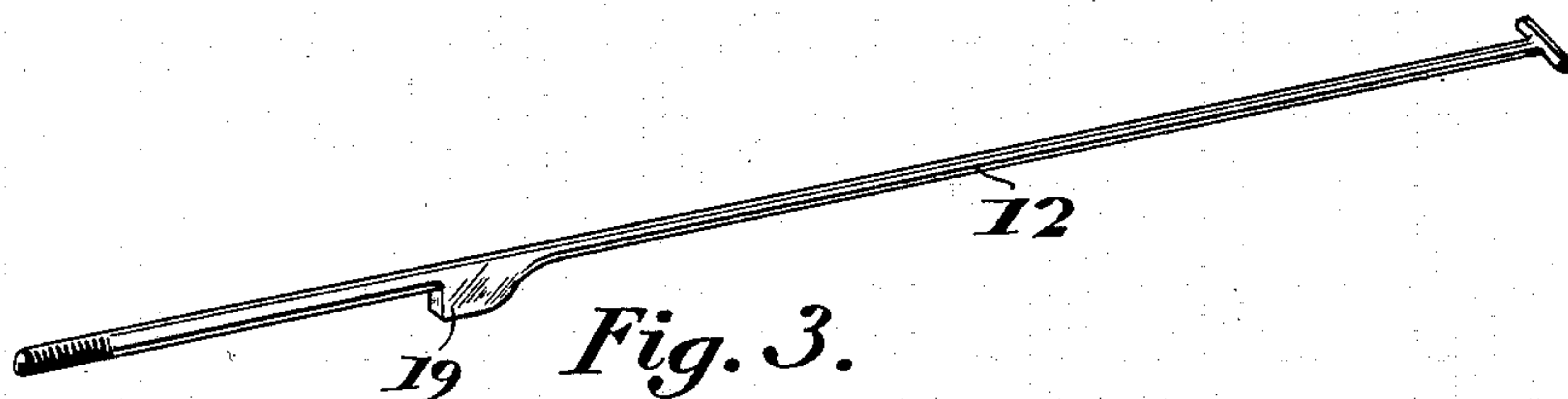


Fig. 3.

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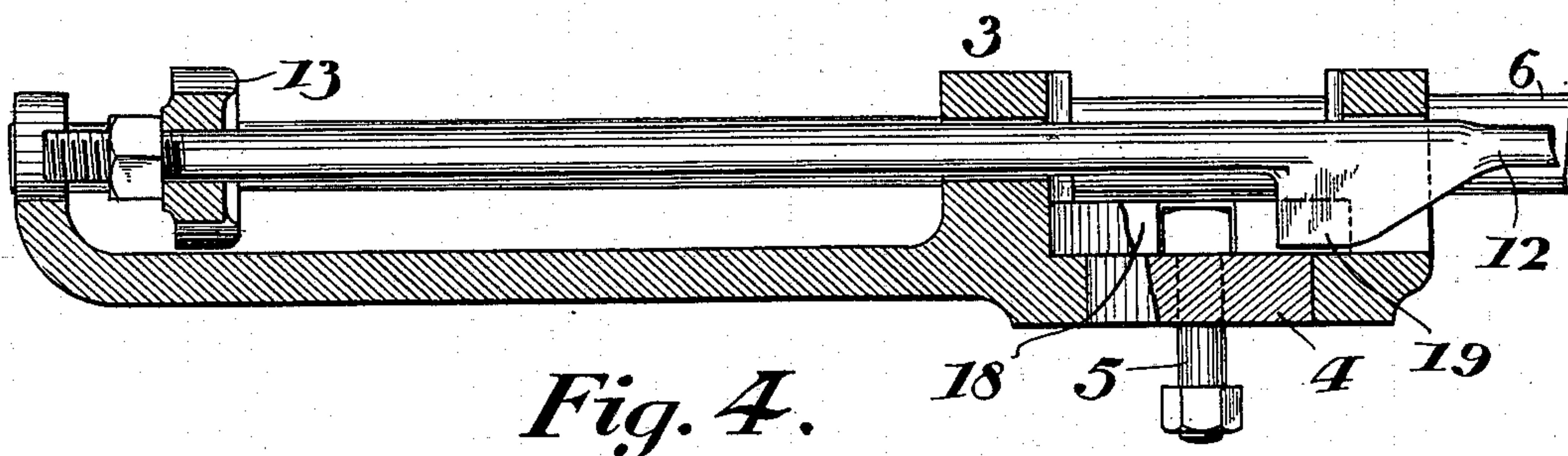
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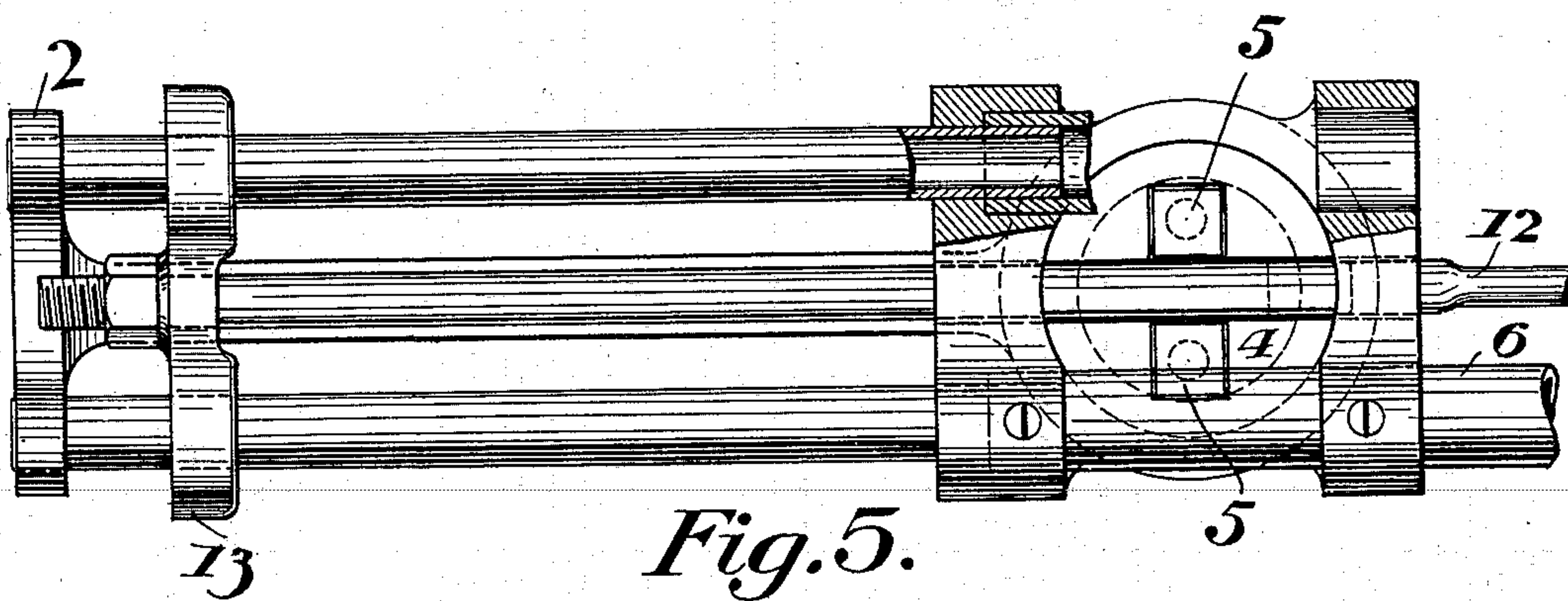
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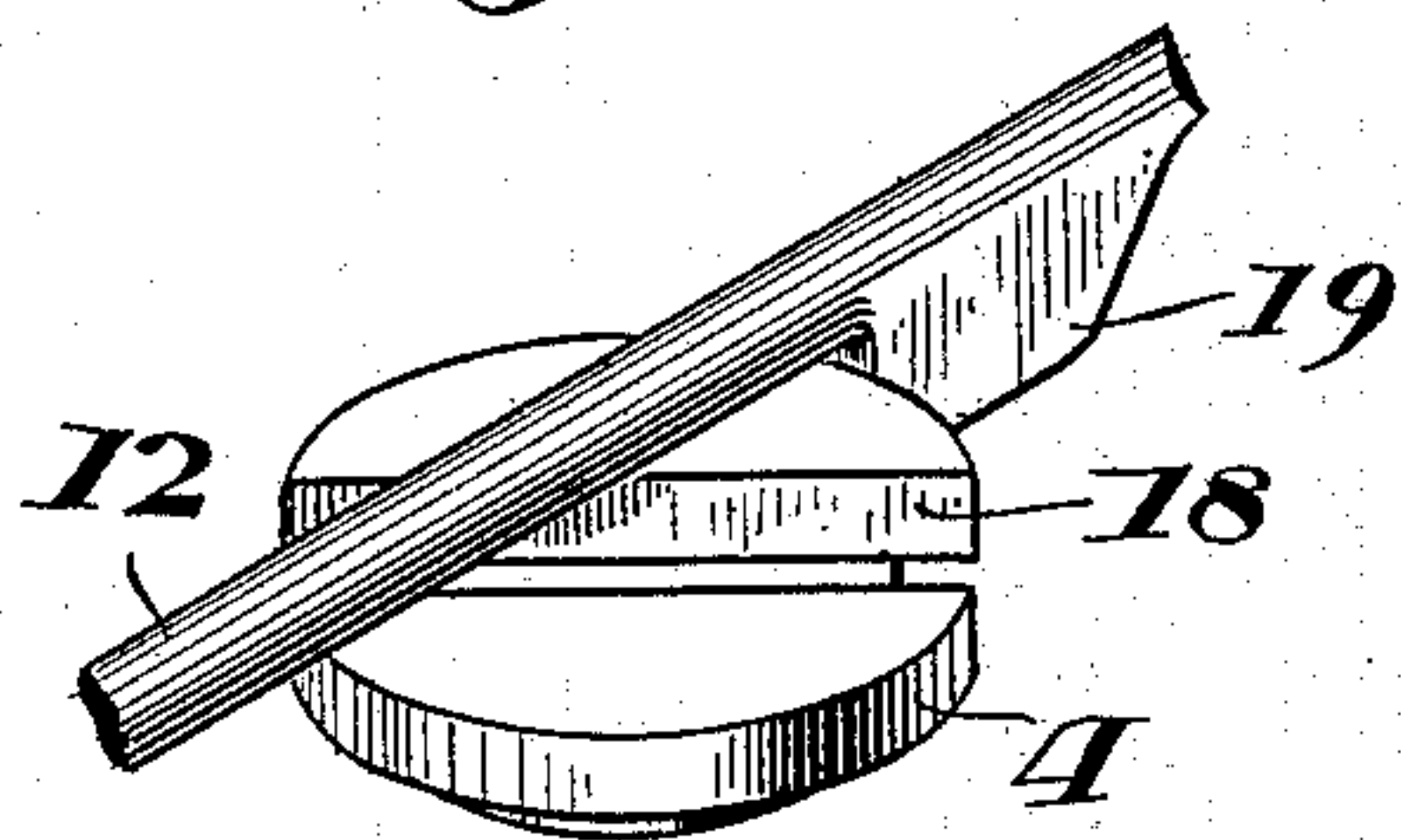
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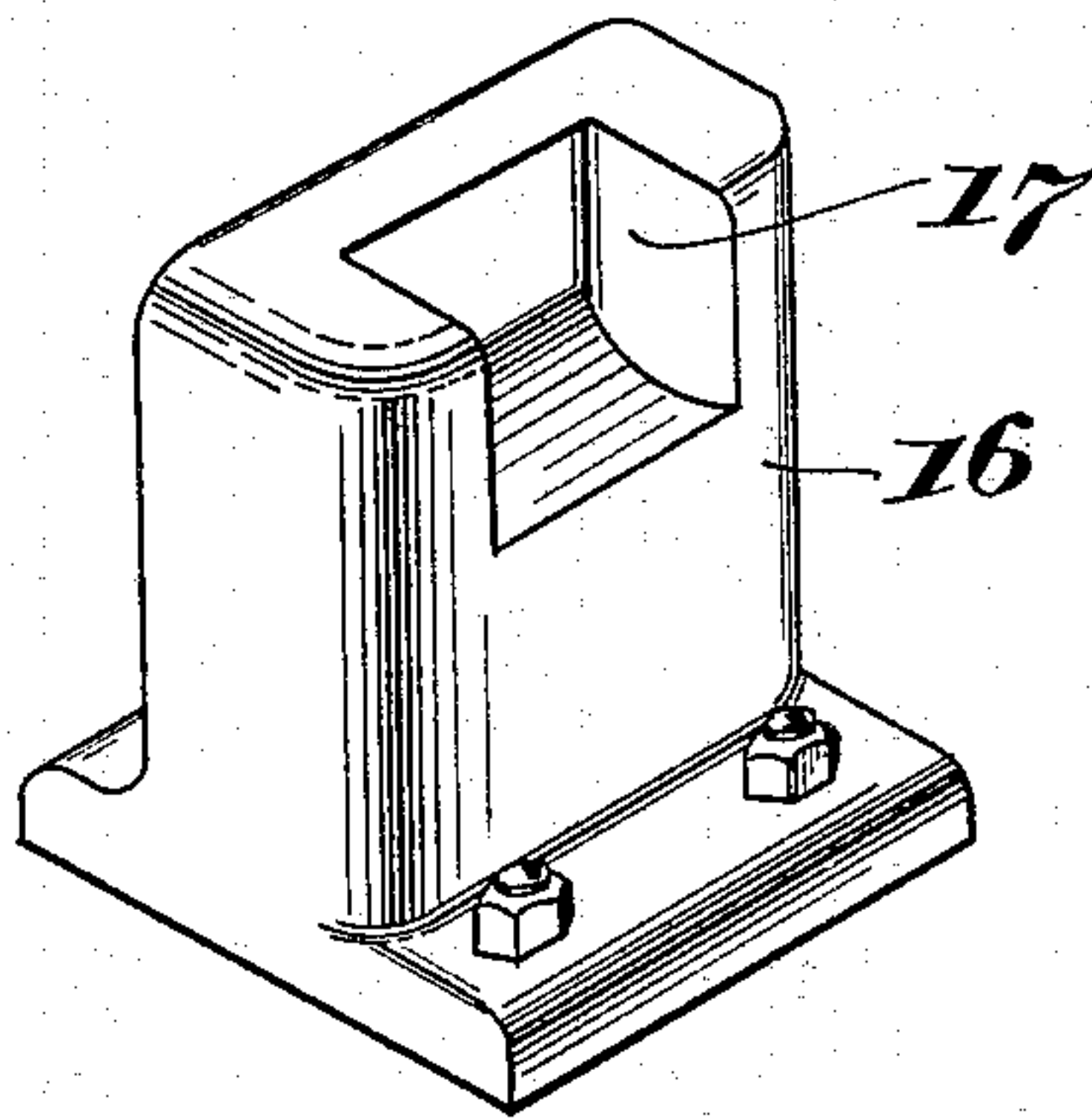
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*Fig. 7.*

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# UNITED STATES PATENT OFFICE,

CHARLES L. JEFFREY, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE  
STEEL MOTOR COMPANY, OF SAME PLACE.

## ELECTRIC TROLLEY DEVICE.

SPECIFICATION forming part of Letters Patent No. 612,132, dated October 11, 1898.

Application filed January 12, 1898. Serial No. 666,457. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. JEFFREY, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Electric Trolley Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to that class of electric trolley devices in which the contact portion of the device is when in operation carried substantially over the center of the vehicle. When a trolley of this character is provided, the conductor-wire may always be placed centrally over the track, so that less lateral motion is required on the part of the contact device. This in turn enables the use of a trolley-arm which has no lateral swing, a transversely-sliding contact-wheel or a transverse roller being sufficient to enable the device to follow any incidental variations in the lateral position of the conductor.

The objects of my invention are the provision of an improved device in which the trolley-arm is mounted on the end of a turn-table, so arranged that the lower end of the arm is carried at either end of the car, while the spring devices, &c., for imparting upward pressure to the trolley are always carried centrally on the car, in which the arm and turn-table are normally locked from lateral movement, and in which the construction and arrangement of parts are such that the device will be durable and efficient in operation and composed of a minimum of parts.

In a trolley device embodying my invention there is a turn-table of considerable length, which is pivoted on a vertical axis at substantially the center of the car. The trolley-arm is carried at the other end of the turn-table, and means are provided for locking the turn-table when the trolley is in operative position.

My invention consists in the novel form of turn-table for this purpose, in the novel automatic lock for normally preventing lateral movement of the arms or turn-table, in means for rendering the upward-pressure devices inoperative and preventing the trolley-arm from moving vertically when it is desired to reverse the position of the turn-table, in the

novel means for imparting upward pressure to the trolley-pole, and in the novel construction, arrangement, and combination of parts by which I am enabled to provide a trolley of great durability and efficiency.

Referring to the drawings, Figure 1 is a side and Fig. 2 a plan view of a trolley embodying the features of my invention. Fig. 3 is a view of the spring connecting-rod. Fig. 4 is an enlarged sectional view showing the pivoted end of the turn-table and the means for locking the same. Fig. 5 is a plan view of the same with portions broken away. Fig. 6 is a plan view of a portion of the spring connecting-rod and the pivot for the turn-table. Fig. 7 is a view of one of the end standards.

Centrally located upon the vehicle is a support 1, upon which rests a base 2, forming part of the turn-table 3.

4 represents a pivot which is secured to the support 1 by the bolts and nuts 5. The base 2 is rotatable about the pivot 4.

6 represents tubular arms which are secured to the base 2 and extend horizontally therefrom. These arms form the main body of the turn-table and at their outer extremities carry a horizontal pivot 7. Upon this is mounted the pole-socket 8, carrying the trolley-pole 9, on the end of which is a transverse shaft 10. The transversely-movable contact-carriage 11 is adapted to roll along this shaft and follow the lateral variations in the position of the conductor-wire.

To the lower end of the mast-socket is connected the T end of a spring connecting-rod 12, which is connected at its other end to a cross-head 13, engaging compression-springs 14. The other ends of the springs bear against an abutment 15 of the base 2. This arrangement has the advantage of reducing the number and weight of the parts which are carried by the extreme end of the turn-table, so that it may be much more readily reversed to the required position and so that the arms 6 are required to support but little weight and therefore may be themselves reduced in weight.

At each end of the car I provide a standard 16, having a recess 17, into which normally enters a portion of the lower end of the mast-socket, thus providing a lock which prevents the lateral swaying of the pole 9 on the hori-



zontal arms 6. The extension on the mast-socket is so shaped that when the trolley-arm is lowered to a horizontal position the mast-socket leaves the recess 17.

5 Formed in the end pivot 4 is a slot 18, and on the spring connecting-rod is a lug 19. In the operative position of the trolley-pole the lug 19 rests in the slot 18 and prevents the rotation of the base about the pivot. When,  
10 however, the trolley-pole is drawn to a horizontal position, so that the mast-socket 8 is withdrawn from the recess 17, the lug 19 is also withdrawn from the slot 18. By means of the combination of these two devices the  
15 turn-table is normally locked at both ends, thus greatly increasing its rigidity and reliability; but the coaction of the slot 18 and the lug 19 also achieves another purpose. When it is desired to reverse the position of  
20 the trolley by rotating the turn-table and throwing the lower end of the trolley to the opposite end of the car, the first lateral movement of the device locks the trolley-pole from vertical movement, for the connecting-rod 12,  
25 instead of tending to draw the pole upward by the action of the spring 14, rigidly holds the trolley-pole in its lowered position because of the engagement of the lug 19 with the periphery of the pivot 4. This is clearly  
30 shown in Fig. 6. The advantages of this are obvious, for it is clear that it would be much more difficult to reverse the position of the pole if it was constantly tending to rise to a vertical position.

35 My invention is broader than the specific embodiment thereof by which I have illustrated it. I do not therefore desire to be limited to the particular details which I have shown and described, as many modifications  
40 therein would readily suggest themselves to those skilled in the art.

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

45 1. In an electric trolley device normally free to move in a vertical plane, a lock for preventing said movement, said lock being actuated by the lateral movement of the trolley device when the same is in a predeter-  
50 mined vertical position.

2. In an electric trolley device the combination with the connecting-rod 12 having the lug 19, of the pivot 5 having the slot 18, said  
55 lug engaging said slot except at a predetermined vertical position of the trolley, said lug being normally movable in said slot but engaging the periphery of said pivot when the arm is at a predetermined vertical position.

60 3. A trolley having capabilities for universal movement and a lock for preventing its movement in a lateral direction, said lock being released by the downward movement of the trolley, in combination with a second  
65 lock for preventing its movement in a vertical direction, said second lock being actuated by the movement of the trolley in a lateral direction.

4. A trolley-arm normally prevented from lateral movement by suitable locking devices, but normally free to swing in a vertical plane 70 and means for releasing said locking devices, in combination with mechanism for preventing the vertical movement of the said arm, said mechanism being operated by a lateral movement of the arm, when in a predeter- 75 mined vertical position.

5. In a trolley adapted to rotate about a vertical pivot but normally prevented therefrom by a locking device, means for releasing said to a predetermined position in combination 80 device effected by the movement of the trolley with a lock for preventing the trolley from moving vertically from said position, said lock being actuated by a lateral movement of the trolley. 85

6. The combination of a base vertically pivoted at a central position on the car, arms extending horizontally from said base to one end of the car, springs carried by said base on the opposite side of the pivot, a trolley 90 hinged to the ends of said arms, and a connecting-rod secured to the lower end of the trolley and to the springs.

7. In an electric trolley device, the combination of a rotatable base, arms extending 95 therefrom to one end of the car, a trolley-pole hinged to the ends of said arms, a fixed standard adjacent to the ends of said arms, a recess in said standard, and an extension on said trolley normally entering said recess, but with- 100 drawn therefrom at a predetermined vertical position of the trolley-arm.

8. The combination of the centrally-located rotatable base and the end-located fixed standards having recesses, horizontal arms extend- 105 ing from said base and terminating adjacent to one or the other of the standards, a trolley-arm hinged to the extremities of said horizontal arms, and an extension on said trolley-arm adapted to enter said recess, but withdrawn 110 therefrom at a predetermined vertical position of the trolley-arm.

9. A central rotatable base having horizontal arms, a trolley-arm hinged to one end of the horizontal arms, a lock at each end of said 115 arms for preventing lateral movement thereof, and means for simultaneously releasing both of said locks.

10. The combination of the base having an abutment 15, and horizontal arms 6, a trolley 120 hinged to the ends of said arms, a cross-head at the opposite side of the base, a rod connected to said cross-head and to the trolley-pole, and springs between the abutment and the cross-head. 125

11. The combination of a support centrally mounted upon the car, a pivot secured thereto, a base rotatable about said pivot and carrying a vertically-movable trolley-arm, a slot in said pivot, spring devices, a connecting-rod 130 between said springs and the trolley-arm, and a lug on said connecting-rod engaging said slot except when the trolley-arm is in a predetermined position.



12. The combination of a support 1, base 2 rotatable thereon and having abutment 15, springs 14 resting against said abutment, movable cross-head 13 bearing against said 5 springs, connecting-rod 12 secured to said cross-head, horizontal arms 6 secured to said base, trolley-arm 9 hinged to the extremities of said arms 6, and a connection with said arm 9 to one end of rod 12.

10 13. The combination of support 1 having pivot 5, base 2 rotatable about said pivot, slot 18 in said pivot, horizontal arms 6 extending

from base 2, trolley-arm 9 hinged to the extremities of said arms 6, connecting-rod 12 between said arm 9 and suitable spring de- 15 vices, and lug 19 on said rod 12, said lug engaging said slot 18 except at a predetermined position of said trolley-arm 9.

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

CHARLES L. JEFFREY.

Witnesses:

RICHARD EYRE,  
MYRTLE E. SHARPE.