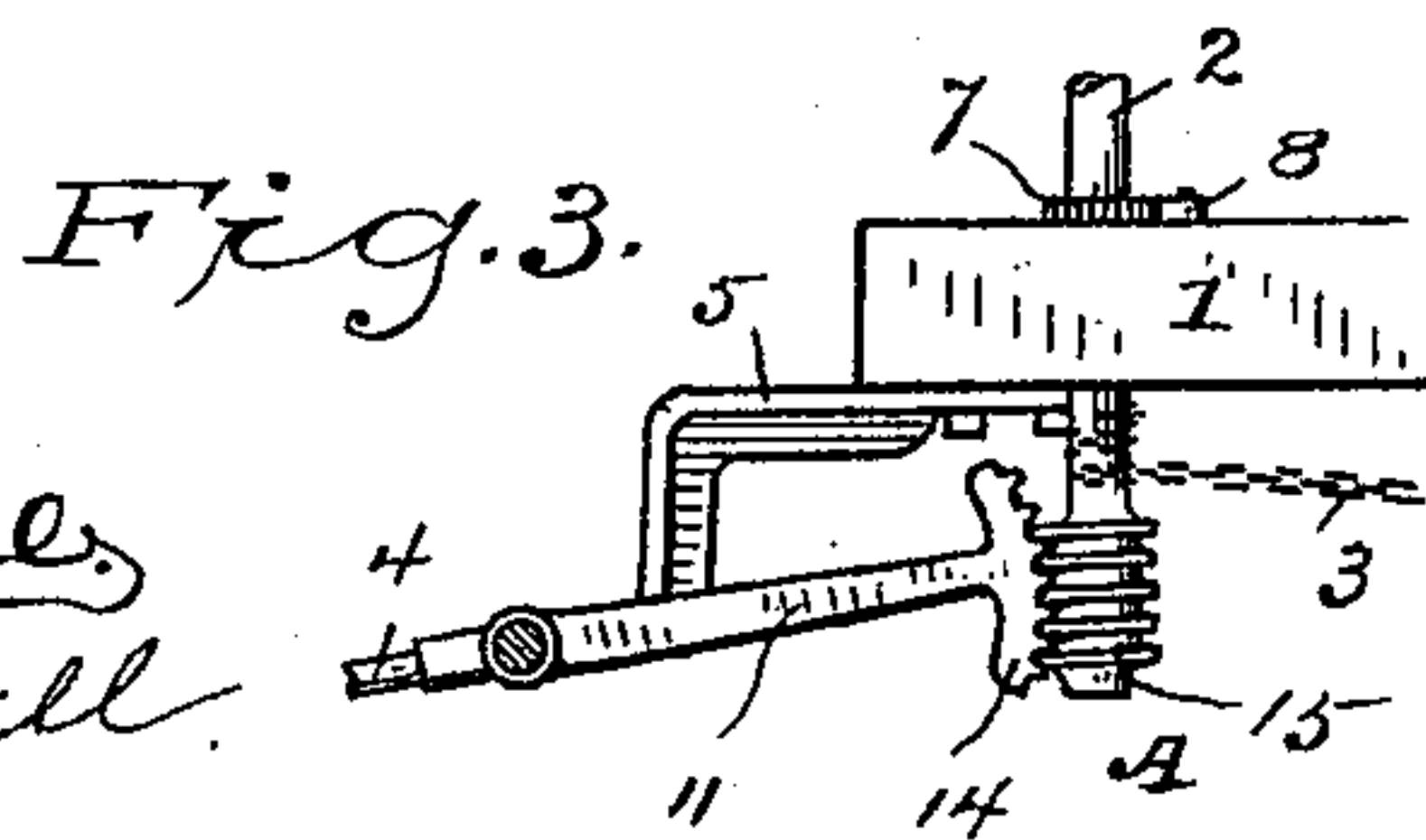
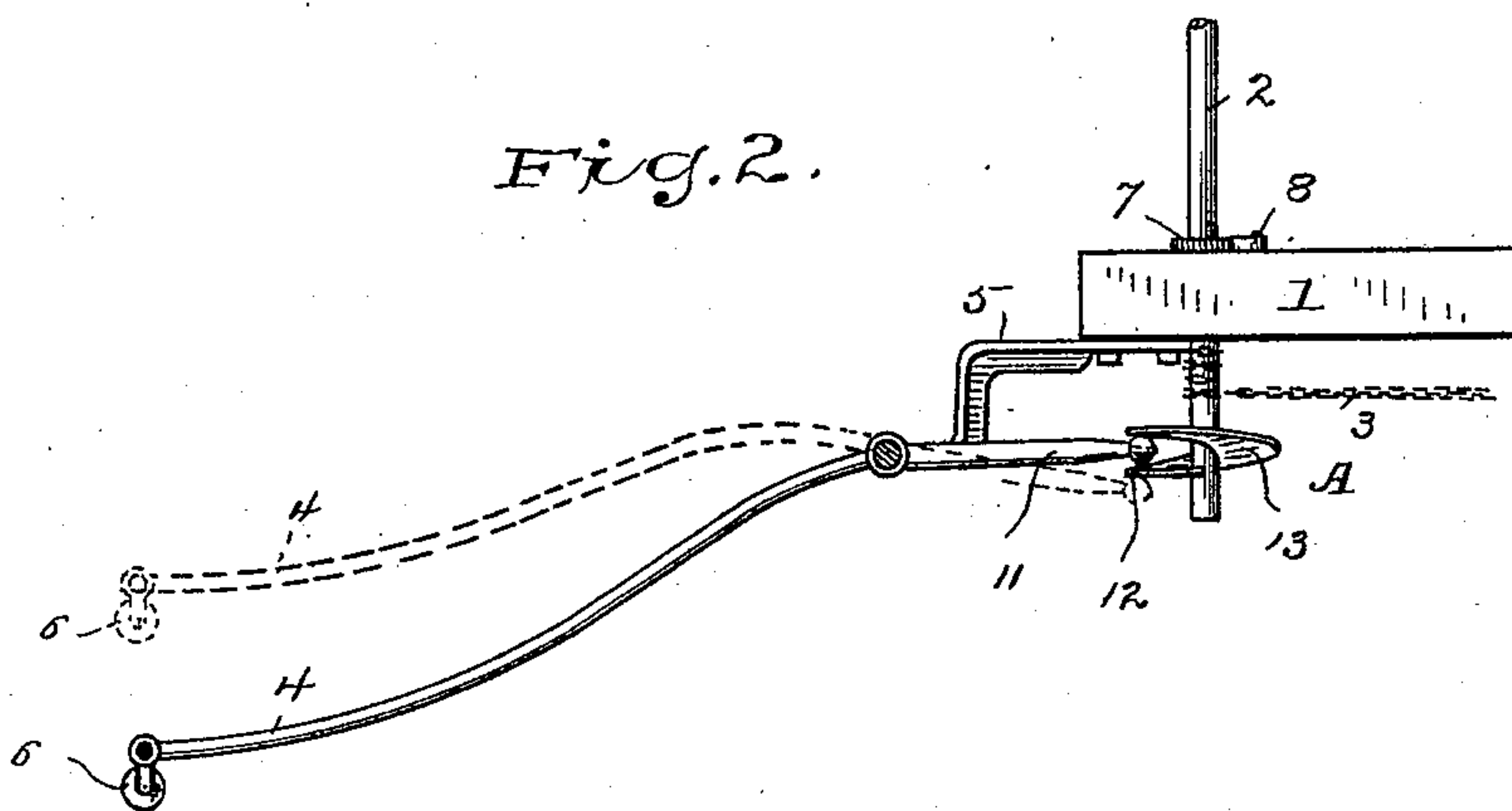
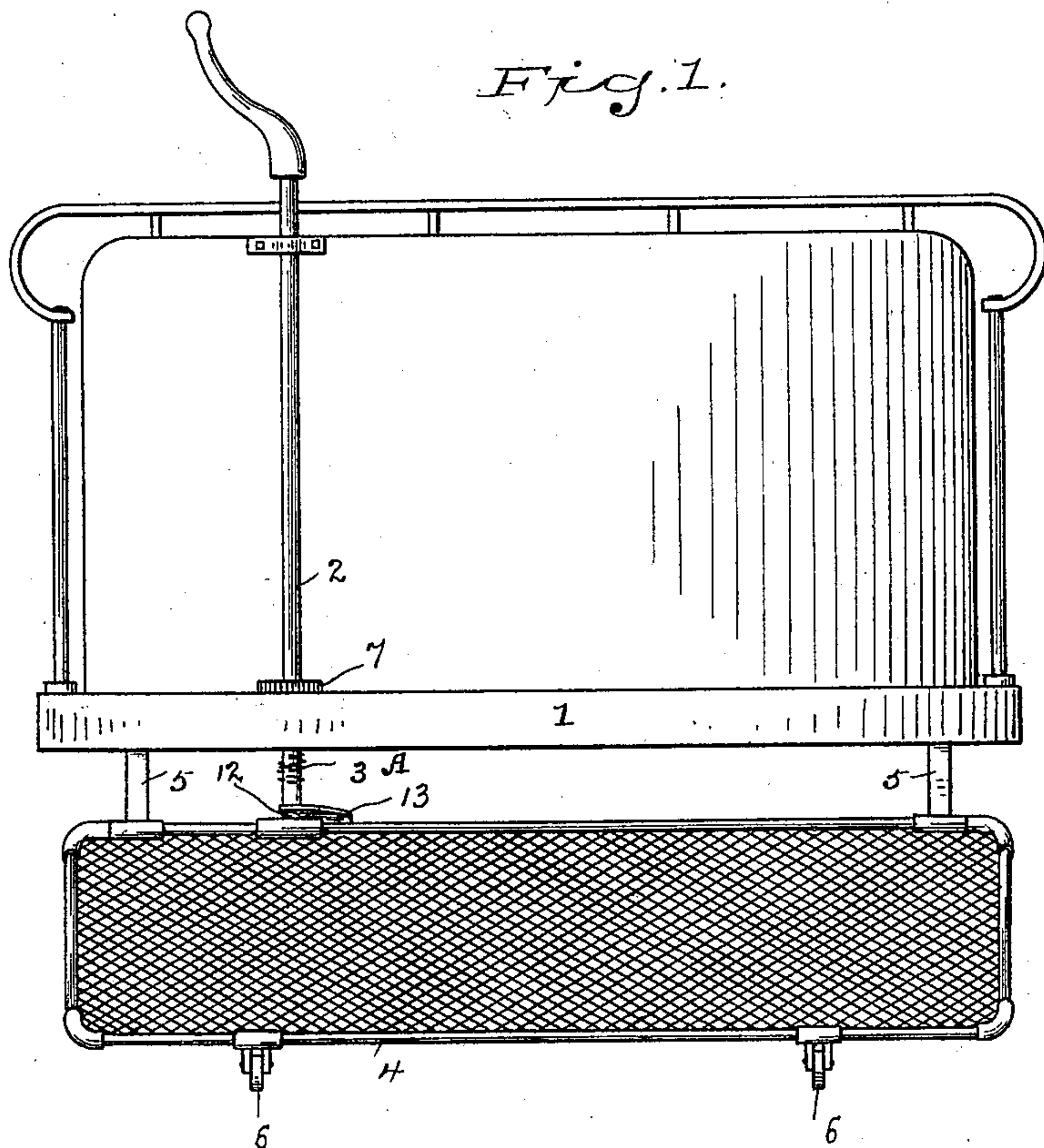


(No Model.)

R. HARRIS & M. K. GOLDSMITH.
MECHANISM FOR LOWERING CAR FENDERS.

No. 601,751.

Patented Apr. 5, 1898.



WITNESSES

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MECHANISM FOR LOWERING CAR-FENDERS.

SPECIFICATION forming part of Letters Patent No. 601,751, dated April 5, 1898.

Application filed August 24, 1897. Serial No. 649,308. (No model.)

To all whom it may concern:

Be it known that we, ROBERT HARRIS, residing at Bridgeport, in the county of Fairfield and State of Connecticut, and MARCUS K. GOLDSMITH, residing at New York, in the county of New York and State of New York, citizens of the United States, have invented certain new and useful Improvements in Mechanism for Lowering Car-Fenders; and we 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.

Our invention relates more especially to tram-cars propelled by electric, cable, or other mechanical power and which are provided with hand-brakes and a vertically-swinging fender; and our invention has for its object to combine with the staff of a hand-brake and a fender of ordinary construction mechanism which will automatically lower the fender when the staff is rotated to set the brake and will return the fender to its normal position again when the strain upon the brake is relieved.

It is of course well understood that it is not practicable to make the road-beds of electrical and other tramways, whether urban or suburban, perfectly level and smooth. It is furthermore understood that it has been up to the present time impossible to prevent the ends of cars from tilting—i. e., rising and falling—when the car is running rapidly. This tilting of the end of the car makes it necessary when running rapidly to carry the fender in such a position that the front edge thereof is raised quite a distance from the ground—raised so high, in fact, that should a person be struck by the fender there is grave danger that the fender will pass over him and hold him down, so that the wheels will pass over him, instead of picking him up and making it impossible for the wheels to pass over him. Unless the fender is raised in this manner when the car is running at a high rate of speed it will thresh the track in such a manner as to quickly destroy it. The utility of fenders is thus practically destroyed, as in order to be able to use a fender at all when running rapidly it is necessary to lift it so

high that it is likely to pass over a person instead of passing under him, the danger being greatest, moreover, when the services of a fender are most likely to be required, and the fender itself as ordinarily used being frequently a source of danger rather than a safeguard to human life. In order to overcome this difficulty and to provide that a fender may be normally carried high enough above the track to be wholly out of contact therewith even when the car is tilting, but which will be automatically lowered to its proper position to save life the instant power is applied to set the brake, we have devised the novel mechanism which we will now describe, referring by numerals and letters to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of a tram-car, showing the brake-staff and fender and also showing the application thereto of our novel device for automatically lowering the fender when the brake-staff is operated to set the brake, the brake being supposed to be at the set position and the fender being at its lowered position—that is, in such a position that the rollers upon the fender will rest between the rails; Fig. 2, a detail side elevation, the fender-frame being in section, the position of the parts in full lines corresponding with Fig. 1 and the normal or raised position of the fender being indicated by dotted lines; and Fig. 3 is a detail side elevation corresponding with Fig. 2, showing a modified form of connection between the brake-staff and the fender.

1 denotes the platform of the car; 2, the brake-staff; 3, the brake-chain, the winding of which upon the brake-staff sets the brake; 4, the fender, mounted to swing vertically in brackets 5, secured to the platform; 6, rollers at the front of the fender, which are adapted to travel on the ground between the rails when the fender is at the lowered position; 7, the ratchet on the brake-staff, and 8 the pawl. These parts may all be of the ordinary or any preferred construction.

We omit illustration of brake mechanism and simply illustrate the brake-staff and chain, for the reason that the special brake mechanism used forms no portion of our pres-

ent invention, which is applicable to any form of brake mechanism employing a brake-staff which is rotated to set the brake.

11 denotes a rigid arm extending backward from the fender, which is engaged by a device A, ordinarily a spiral plate or a worm, upon the brake-staff.

In Fig. 2 we have shown arm 11 as provided at its rear end with an antifriction-roller 12 and device A as consisting of a spiral plate 13, rigidly secured to the brake-staff, and in Fig. 3 we have shown the arm 11 as provided at its rear end with a segment worm-gear 14, and device A as consisting of a worm 15.

The operation will be readily understood from the drawings. The normal position of the fender and arm 11 relatively to device A is shown by dotted lines in Fig. 2. It will be seen that in the normal—i. e., the raised—position of the fender, roller 12 upon arm 11 is in engagement with the low portion of spiral plate 13, the brake being at the released or “off” position. Suppose now that in use it is desired to stop the car suddenly. The operator having shut off the power, with which our present invention has nothing to do, turns the brake-staff to set the brake. The rotation of the brake-staff, in addition to winding the chain which sets the brake, rotates spiral plate 13 and causes roller 12 at the rear end of arm 11 to travel up the incline toward the high portion of the spiral plate. As the rear end of arm 11 rises it of course follows that the fender to which arm 11 is rigidly attached will drop downward by gravity until the forward end of the fender nearly or quite touches the rails, rollers 6 passing between the rails, thus placing the fender in just the position required to save life, but a position which is not practicable under ordinary circumstances, especially when the car is running rapidly. Before the car can be

started again the operator must of course release the brake. The backward rotation of the brake-staff causes roller 12 upon arm 11 to travel down the incline of the spiral plate and raises the fender to its normal position again, in which position it is retained by the continued engagement of device A with the arm upon the fender, the construction of the parts being such that rotation of the brake-staff is required in order to lower the fender from its normal position.

The operation of the form illustrated in Fig. 3, in which arm 11 is provided with a segment worm-gear instead of a roller and the brake-staff carries a worm instead of a spiral plate, is precisely the same as the other form and is not thought to require further description.

Having thus described our invention, we claim—

1. In a tram-car the combination with a vertically-swinging fender having a rigid arm extending backward therefrom, of a brake-staff carrying a device A which directly engages the arm and acts to swing the fender downward when the brake-staff is rotated to set the brake.

2. The combination with a vertically-swinging fender having a rigid arm extending backward therefrom and carrying an antifriction-roller, of a brake-staff carrying a spiral plate which engages the arm and acts to tilt the arm and allow the fender to swing downward when the brake-staff is rotated to set the brake.

In testimony whereof we affix our signatures in presence of two witnesses.

ROBERT HARRIS.
MARCUS K. GOLDSMITH.

Witnesses:

A. M. WOOSTER,
A. M. WITHERELL.