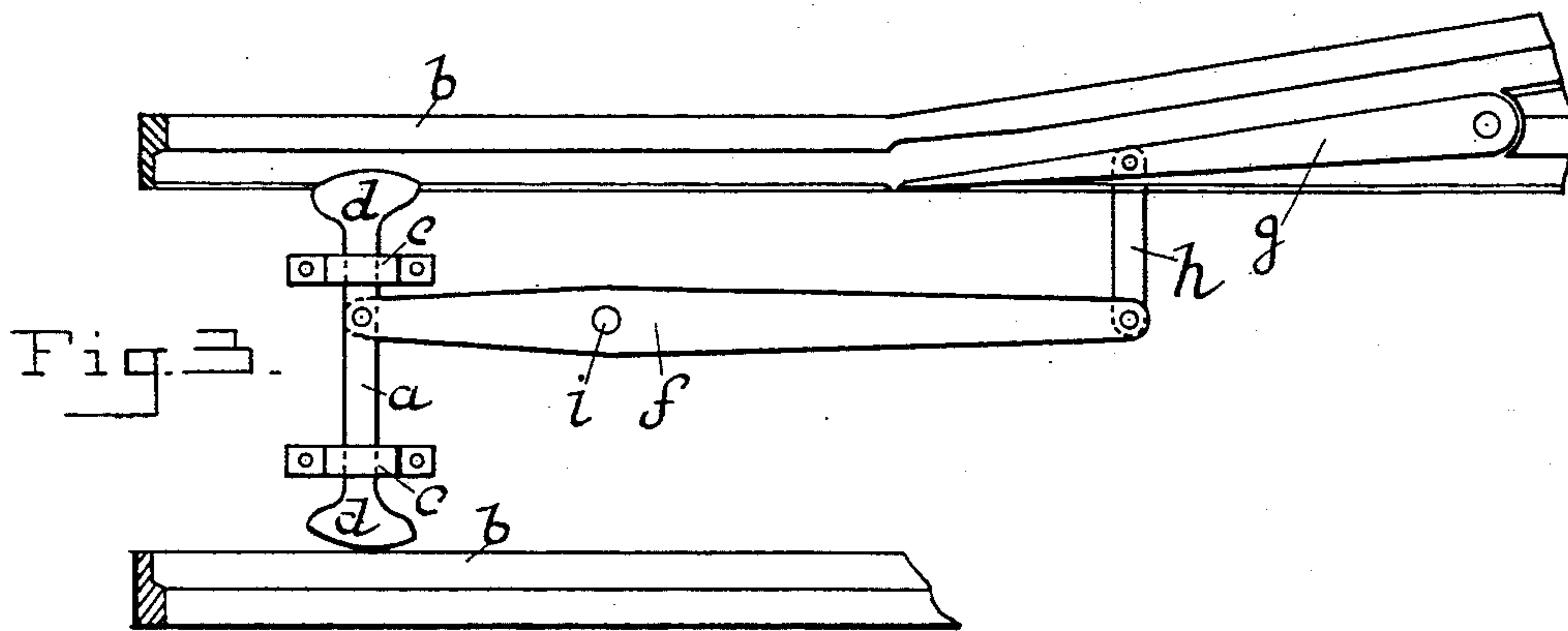
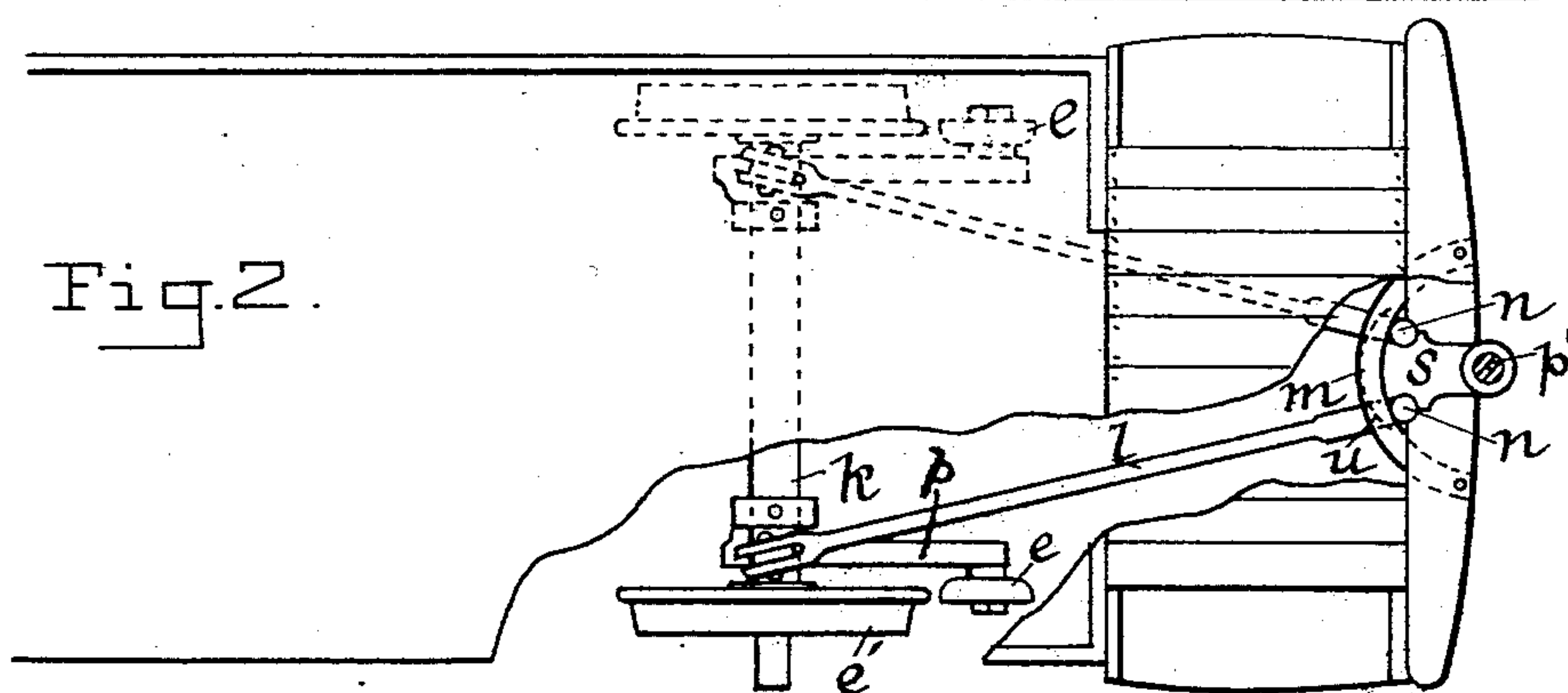
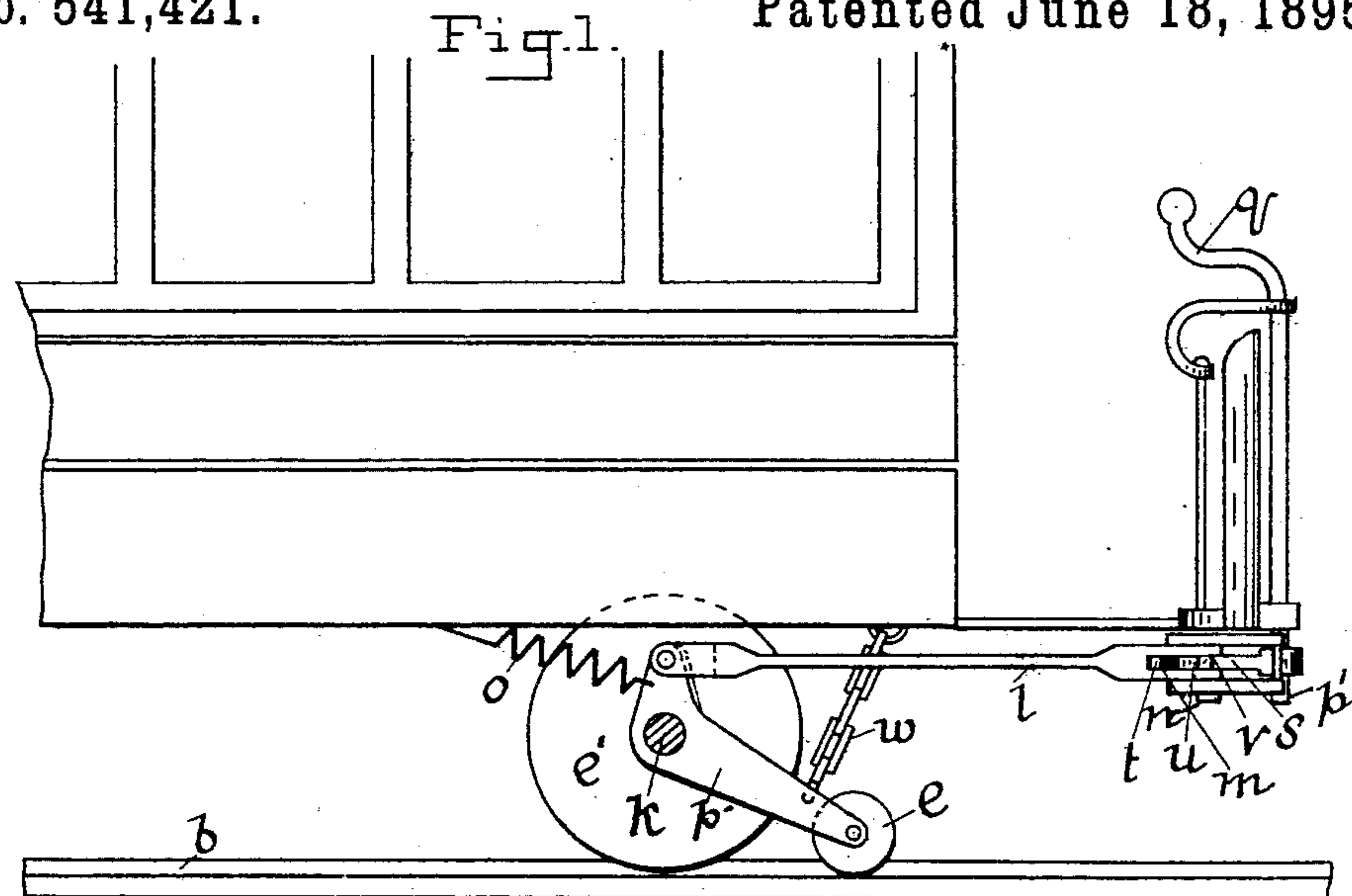


(No Model.)

G. BORGESON.
STREET RAILWAY SWITCH.

No. 541,421.

Patented June 18, 1895.



WITNESSES.

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UNITED STATES PATENT OFFICE.

GUSTAF BORGESON, OF BROOKLYN, NEW YORK.

STREET-RAILWAY SWITCH.

SPECIFICATION forming part of Letters Patent No. 541,421, dated June 18, 1895.

Application filed January 15, 1894. Serial No. 496,839. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF BORGESON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Street-Railway Switches, of which the following is a specification.

My invention relates to street railway switches to be operated by an attachment on the car subject to the control of the motorman, and it consists of a shifting bar placed transversely between the rails in advance of the switch, and connected with the switch point for shifting it, and adapted to be shifted by roller shifters carried on the car and so connected with a motorman's hand lever that the shifting rollers may be controlled to cause the shifting bar and the switch to move one way or the other according as the hand lever is shifted to the right or left, thus providing a simple, effective and reliable apparatus whereby switches may be opened or closed by the motorman in his place on the platform and without stopping the car, the apparatus being constructed and arranged as hereinafter fully described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a sectional elevation of part of a car and side view of part of a rail, showing the application of my invention. Fig. 2 is a plan view of the same with part of the car broken out. Fig. 3 is a diagram of part of a track, including the switch-point and the switch-shifting bar.

At a suitable distance in advance of the switch I place the switch shifting bar *a*, transversely between the rails *b*, in any suitable holders as *c*, allowing said bar to be shifted a short distance lengthwise forward and backward, said bar having the broad flat heads *d*, so curved at the ends that the bar being placed on a level with the treads of the rails, the roller shifters *e*, carried on the car will, when actuated by the motorman, run between the heads and the rails and shift the bar one way or the other according as one or the other of the roller shifters is actuated.

The bar *a*, is connected by the lever *f*, with

the switch point *g*, by the link *h*, said bar being fixed on a pivot *i*, having a fixed position in the road bed.

The roller shifters *e*, are carried on the lower forwardly projecting ends of the elbow rock levers *p* preferably pivoted on the axle *k*, but may have any other pivot support carried by the car. The other upwardly projecting ends or said levers *p* have rods *l* connected to them respectively and extending forward under and about to the front end of the platform, and between the curved bars *m*, against the inner edges of which said rods *l* have studs *n*, at the ends so bearing that when the said ends are made to swing along the curved bars *m*, toward their extremities the rods will be thrust forward and the roller shifters will be forced down to take effect on the shifting bar. The springs *o* pull the roller up, and the rods *l* back when the pull on the rods *l*, by the motorman ceases.

For effecting the pull on the rods *l*, for so thrusting the shifting rollers down, a vertical shaft *p'*, is located in the axis of the curved bars *m*, with a hand crank *q* at the upper end, and another crank *s* at the lower end and under the platform, the extremity of which projects between the ends of the two rods *l*, and into the slots *t* of the said rods, and has the hook prongs *u*, which engage the ends of said rods by the pins *v*, crossing the slots thereof when the shaft *p'* is turned by the motorman, one when said shaft is turned one way, and the other when turned the other way, and thus actuates one or the other of the shifting rollers as desired, the other remaining idle.

To prevent the shifting rollers from being unduly thrust down by resistance of the rails and shifting bar on them, any approved kind of positive rest may be employed, as chains *w*, which when extended to their limit by the down movement of the levers will hold the roller shifters at the right position and positively prevent further movement.

By arranging my switch shifting bar in the plane of the rails and switch, the apparatus is much simplified as compared with the apparatus of the Patent No. 496,725, and with those devices in which the car wheels are made

to press down a lever or other device standing higher than the surface of the rail.

I am aware of the patent of Hope, No. 351,440, in which a transverse shifting bar in the plane of the rails is arranged to be shifted by the flanges of horse car wheels according as the car is pulled right or left by the horses, and I make no claim to such device, my invention being specially adapted for cars which cannot be so diverted for actuating the switch.

I am also aware of the patent to Bill, No. 291,138, in which a short transverse shifting bar is arranged to open the switch by the wheel of a horse car pulled to one side by the horses, with a spring to close the switch as soon as the wheels of the short wheel base of street cars have passed the switch point, but my invention is designed for cars propelled by means incapable of pulling them sidewise and of such long wheel base that the switch point cannot be held open by the advance wheels till the hind wheels reach the point, also for cars *en train* for which the Bill patent will not serve.

I am also aware of the patent to Church, No. 464,061, dated December 1, 1891, in which there is a transverse sliding bar placed under the rails and connected by a lever with another sliding bar which shifts the switch, said first mentioned sliding bar having two levers which being actuated by the rollers on the car actuate the sliding bar and I do not claim such arrangement, my device being a simpler arrangement whereby said two levers for being

actuated by said rollers are dispensed with, and the slide bar for shifting the switch also.

I claim—

1. In a switch for cars having motive power incapable of pulling the forward end sidewise for shifting the switch by the car wheels, and provided at each side with a lever and roller switch shifter subject to the control of the motor-man, the combination with the rails and the switch point of a switch shifting bar having a broad curved head at each end and placed transversely between the rails at the level of the rails and switch point suitably to be actuated by said roller shifters respectively for both opening and closing the switch, and the lever and link connecting said bar and switch point, said shifters taking effect between the rails and the heads of the bar substantially as described.

2. The combination with the switch actuating roller shifters and the elbow lever supports therefor located on the car, of the rods for working said elbow levers, the studs of the rods and the curved bars controlling said rods, the crank shaft and hook-headed crank adapted to pull each rod independently of the other substantially as described.

Signed at New York city, in the county and State of New York, this 28th day of October, A. D. 1893.

GUSTAF BORGESON.

Witnesses:

W. J. MORGAN,
S. H. MORGAN.