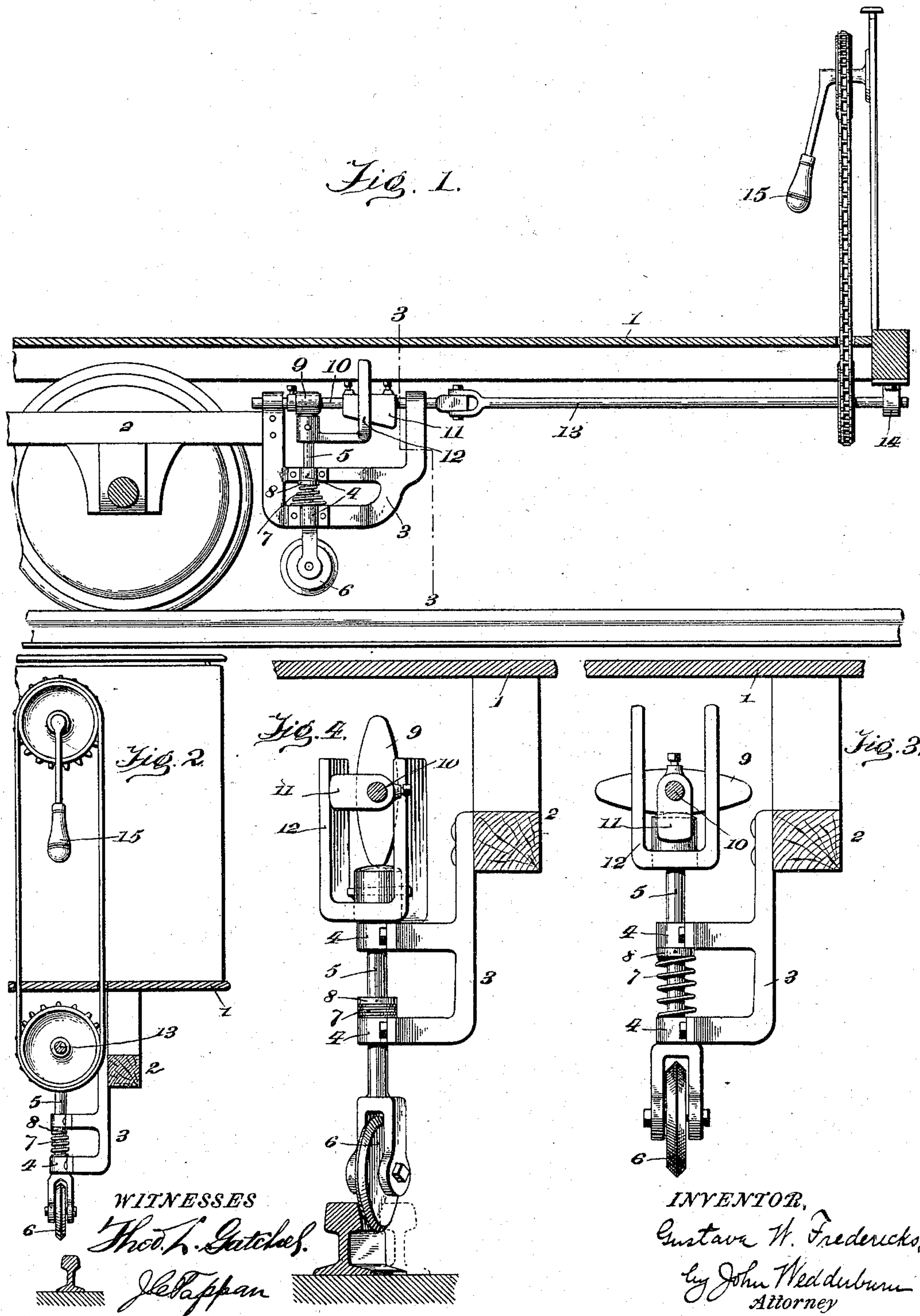


(No Model.)

G. W. FREDERICKS.
SWITCH OPENER.

No. 571,356.

Patented Nov. 17, 1896.



UNITED STATES PATENT OFFICE.

GUSTAVE W. FREDERICKS, OF DETROIT, MICHIGAN.

SWITCH-OPENER.

SPECIFICATION forming part of Letters Patent No. 571,356, dated November 17, 1896.

Application filed September 3, 1896. Serial No. 604,790. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE W. FREDERICKS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Switch-Openers; 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.

This invention relates to a novel construction in a switch-opener to be used in connection with street-railway or with the steam cars.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a street-car provided with a switch-opener constructed in accordance with my invention. Fig. 2 is an end elevation of the same. Fig. 3 is an enlarged view taken on the line 3 3 at Fig. 1. Fig. 4 is an enlarged view showing the switch-opener in position it occupies when opening the switch.

In said drawings, 1 indicates the platform of the car, and 2 the truck.

3 is a frame for carrying this switch-opener that is preferably secured to the truck 2, for the reason that there is less vertical motion on the part of the truck than any other part of the car. In bearings 4 in said frame 3 is an upright spindle 5, that is provided at its lower end with a sharp wheel 6. The spindle 5 can turn in its bearings and is sustained therein by a spring 7, which preferably is a coil-spring encircling the spindle and resting on the lower bearings 4, while its upper end is in contact with a collar 8 on said spindle. The upper end of said spindle 5 is adapted to come into contact with a cam 9, carried by a horizontal shaft 10, also supported in bearings in the frame 3. The spring 7 serves to hold the spindle at the upper limit of its movement and in contact with said cam 9. The shaft 10 also carries an adjustable arm 11, that stands between the end of a fork 12, that is connected with the upper end of the spindle 5.

It will be seen from the foregoing description that the rotation of the shaft 10, through the intermediacy of the arm 11, will throw the fork to one side or the other and thereby rotate the spindle. The outer face of the arm 11 is inclined and is adjustable longitudinally upon the shaft 10, so that by moving it back and forth upon the shaft 10 the extent to which the arm will throw the fork can be regulated.

The shaft 10 is connected with a rod 13, extending to the front end portion of the platform, where it is supported in a suitable bearing 14. Suitable devices are arranged between the shaft 13 and a handle 15 within easy reach of the driver or motorman by means of which he can turn the shaft 13 and operate the switch-opener, and in the present case I have shown such device as consisting of a gear-wheel upon the shaft 13, a gear-wheel upon the dashboard of the car controlled by said handle 15, and a sprocket-chain connecting said gear-wheels.

In operation the sharp wheel 6 is usually carried about three-quarters of an inch above the track, and it will be noted that when the driver desires to throw a switch by operating the handle 15 he turns the shaft 10. This shaft through the cam presses the spindle down and forces the wheel 6 between the rails forming the switch, while the arm 11 through the fork turns the spindle and thus throws the tongue of the switch out of the path of the flange of the approaching wheel.

It will be seen that the wheel can be thrown either to the right or left without interfering with the vertical movement of the same, so that a switch-tongue can be thrown to either side.

I claim as my invention—

1. In a switch-opener, an upright rotatable and longitudinally-movable spindle provided with a wheel at its lower end, a spring to lift said spindle, a rotatable shaft having a cam in contact with the upper end of said spindle, and an arm upon said shaft adapted to come in contact with and move a fork projecting laterally from said spindle, substantially as described.

2. In a switch-opener, an upright rotatable and longitudinally-movable spindle having a wheel at its lower end, a spring for lifting said spindle, a rotatable shaft having a cam in contact with the upper end of said spindle, a laterally-projecting fork carried by said spindle, and an adjustable arm mounted upon said shaft and adapted to come in contact with said fork, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GUSTAVE W. FREDERICKS.

Witnesses:

ALLISON GUNN,
CORA M. GUNN.