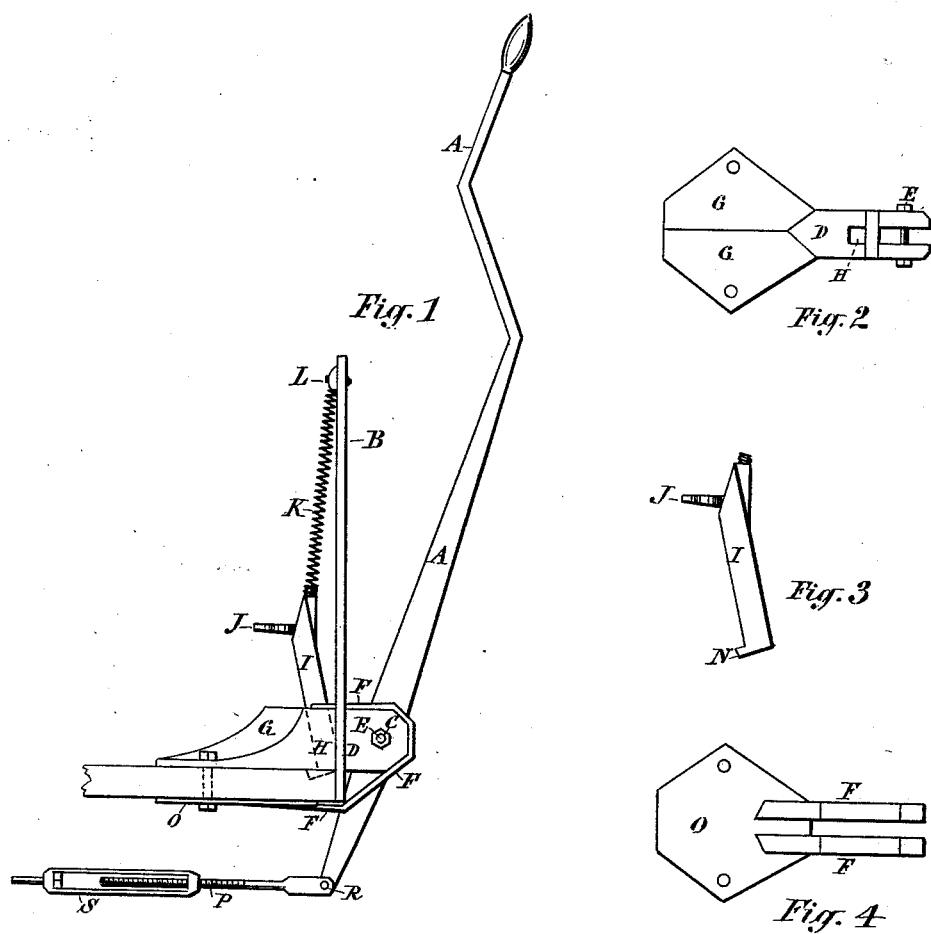


O. F. COWLES.  
Brake-Lever for Street-Cars.

No. 217,992.

Patented July 29, 1879.



WITNESSES:

George W. Hey.  
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# UNITED STATES PATENT OFFICE

OSCAR F. COWLES, OF SYRACUSE, NEW YORK.

## IMPROVEMENT IN BRAKE-LEVERS FOR STREET-CARS.

Specification forming part of Letters Patent No. 217,992, dated July 29, 1879; application filed March 19, 1879.

*To all whom it may concern:*

Be it known that I, OSCAR F. COWLES, of the city of Syracuse, county of Onondaga and State of New York, have invented a new and Improved Brake-Lever for Use on Street-Railway Cars, of which the following is a specification.

The invention relates to a brake-lever for use on street-railway cars.

Heretofore the brakes in use on street-railway cars have commonly been operated by means of a chain fastened to the iron brake-rods under the car at one end, and at the other end to an upright iron spindle or drum having a crank-handle upon its upper end. By turning this handle the spindle or drum was also turned, and the chain thereby wound around it, which caused the brakes to act, and produced a strain or tension upon the wheels of the car, thereby slackening its speed and stopping it. The power produced by winding up the chain as aforesaid was a side leverage-power, and was objectionable, because the application of the same was not instantaneous or quick enough, requiring considerable time and great exertion on the part of the operator, the brake-handle having to be turned around a number of times before the tension of the brakes on the wheels was sufficient to stop the car, making it impossible for the driver to stop the car upon being signaled until it had run a considerable distance.

The object of my invention is to provide a direct leverage-power, which shall be instantaneous in its action and application to the brakes, requiring but one movement, thereby enabling the driver to stop the wheels of the car instantly upon receiving the signal, and to obtain greatly-increased leverage-power, together with ease and instant action in applying and releasing the same; and I do hereby declare that the following is a full and exact description of the said invention, as will more fully appear by a reference to the drawings thereof hereto annexed—

Figure 1 representing the invention complete; Fig. 2, the upper part of the frame D; Fig. 3, the steel dog I; Fig. 4, the lower part of the frame, the following being a full description of the same:

The said Fig. 1 consists of an upright iron

lever (marked A) about four feet long, the same being formed at its upper end in a shape somewhat resembling the common brake-handle now in use on street-railway cars, being so formed for the purpose of enabling the driver to operate the same with greater ease. The said lever A is widest at a point about ten inches from its lower end, (marked C,) from which point said lever tapers gradually toward either end. At this point C in said lever A there is a hole about five-eighths of an inch in diameter, where the lever A is connected to the upper part of an iron frame, D, by means of a bolt, E, and called the "fulcrum-bolt," which passes through two lugs projecting from said frame D, forming a recess, into which the lever A fits, and is secured by means of said bolt E passing through the hole in said lever at C.

The iron frame above referred to is designated by letters D, G, O, and F, D being the upper part of the same, and intended to rest upon the floor of the platform of the car, G being the rear portion of the same, which is flattened and spread out in the manner and shape shown by Fig. 2 of the drawings; the part O, as shown by Fig. 4, being a flat iron plate of the same shape as G, and intended to be fastened to the under side of the platform of the car by means of two bolts, which pass through the parts G and O and the platform, and are secured by nuts on the lower ends of said bolts, as shown by Fig. 1.

The parts F are iron straps, which are welded to the plate O, and pass upward at an angle around the ends of the lugs at E to and over the top of the frame D, as shown by Figs. 1 and 4, the said parts F being intended to act as braces against the pressure of the lever A at the fulcrum-bolt E. The said frame is intended to be fastened upon the platform at the place where the brake now in common use is secured, the lever A being outside of the dash-board B, the iron frame D resting upon and being bolted to the platform inside of the said dash-board, the plate O being fastened on the lower side of the platform, and the parts F extending upward from O at an angle around the ends of the lugs, and on the upper side of the frame D to a point just inside of the dash-board B.

The upper part, D, of the frame referred to

extends back from the lugs at the fulcrum C for about four inches, at which point it is flattened and spread out in the form shown by the part G in Fig. 2 in the drawings, and having two holes for bolts through the same. Between this part G and the lugs of the frame D there is a recess (marked H,) as shown by Figs. 1 and 2, about one inch wide and one and one-half inch long, which passes down at an angle through the said frame D, and through the edge of the platform, pointing forward toward the lever A. Through this recess H passes a piece of steel called a "dog," marked I, and shown by Figs. 1 and 3,) the same fitting the recess H, and being about eight inches long, having near its upper end a step, J. At the top of said step J, and on the side nearest the dash-board B, is bolted a piece of iron, which extends upward parallel with the dash-board for about two inches above the top of the dog I, where is fastened one end of a brass spiral spring about twelve inches long, (marked K.) The other end of said spring is fastened to the dash-board B at the point L. Upon the lower end of the dog I, and on the side opposite the lever A, is welded a steel lug, N, projecting about one-half an inch from the side thereof, being for the purpose of preventing the dog I from being pulled entirely through the recess H in frame D when drawn up by the spring K, as shown by Fig. 1.

The part O is composed of an iron plate about one-half inch thick and of the shape shown by Fig. 4.

The brake-bars which hold the brake-blocks

against the wheels of the car are connected by the system of bars and levers now in use on street-railway cars to a rod marked P in Fig. 1, which is bolted to the lower end of the lever A at the point R. This rod P is composed of two pieces of iron connected by a swivel, S, which is used for the purpose of adjusting said rod to the proper length and taking up any loss of motion caused by wear upon the different parts.

The device is designed to operate in the following manner, viz: The brake being at rest, the handle of the lever A is grasped by the driver, who pulls the same directly toward the dash-board B, and at the same time presses down with his foot upon the step J, thereby forcing the dog I downward and against the lever A, locking the same at any desired point.

To release the brake, the driver grasps the handle of the lever A after removing his foot from the step J, and springs the said lever slightly in the direction of the dash-board B, thereby removing the tension on the dog I, allowing it to be pulled up by the spring K, and the lever A dropping back to the position shown by Fig. 1 in the drawings.

What I claim is—

The combination of the frame D, G, O, and F with the fulcrum-bolt E, dog I, lug N, step J, spring K, swivel S, rod P, bolt R, and lever A, all operating as described.

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Witnesses:

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